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MACKENZIE VALLEY PIPELINE INQUIRY

Government
Publications

IN THE MATTER OF AN APPLICATION BY CANADIAN ARCTIC
GAS PIPELINE LIMITED FOR A RIGHT-OF-WAY THAT MIGHT
BE GRANTED ACROSS CROWN LANDS WITHIN THE YUKON
TERRITORY AND THE NORTHWEST TERRITORIES FOR THE
PURPOSE OF THE PROPOSED MACKENZIE VALLEY PIPELINE

and

IN THE MATTER OF THE SOCIAL, ENVIRONMENTAL AND
ECONOMIC IMPACT REGIONALLY OF THE CONSTRUCTION,
OPERATION AND SUBSEQUENT ABANDONMENT OF THE ABOVE
PROPOSED PIPELINE

(Before the Honourable Mr. Justice Berger, Commissioner)

Whitehorse, Y.T.,

August 12, 1975.

PROCEEDINGS AT INQUIRY

Volume 52

CANADIAN ARCTIC
GAS STUDY LTD.

SEP -8 1975

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APPEARANCES:

Ian Scott, Esq., Q.C.,
S.T. Goudge, Esq., & appear for Commission;
D. Carter, Esq.,
J.J. Marshall, Esq., appears for Canadian Arctic Gas
Pipeline Limited;
R.G. Gibbs, Esq., and
Mr. Hollingworth appear for Foothills Pipelines;
R. Veale, Esq., appears for Council of Yukon
Indians;
R. Anthony, Esq., appears for Canadian Arctic
Resources Committee;
G.W. Bell, Esq., appears for Indian & Metis
organizations of the Northwest
Territories;
J.U. Bayly, Esq., appears for Inuit Tapirisat of
the Mackenzie Delta.

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Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

Whitehorse, Y.T.,

August 12, 1975

(PROCEEDINGS RESUMED PURSUANT TO ADJOURNMENT)

MR. ANTHONY: I believe we left off yesterday evening after Dr. Banfield's extemporaneous prepared statement on the synergistic effect of multi-line developments in a single corridor, and we indicated there, I think, as concisely stated, that often the sum total is greater than the particular parts that make up a development in a corridor area.

PHILIP HARVEY DAU,
JOHN RICHARD O'ROURKE,
GUY LESLIE WILLIAMS,
JOHN IVOR CLARK,
RUSSELL ALEXANDER HEMSTOCK,
ALEXANDER WILLIAM FRANCIS
BANFIELD,
WAYNE B. TRUSTY, resumed:

CROSS-EXAMINATION BY MR. ANTHONY (CONTINUED):

Q I think if I understood the thrust of your warning to this Inquiry was that you can't say that if you put a transportation system along an already existing system, for example the highway, that the impact of that second system will be less because it's already in a disturbed area.

WITNESS BANFIELD: Yes sir.

Q And in fact the impact, because of this synergistic effect, may be dramatic and quite greater than if you put that line in an undisturbed area in the first place.

A Yes sir.

Q And I would take it that you would agree with me that just as this effect that

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Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1 you so carefully described applies to the construction
2 of a line alongside a highway or another line, that
3 similarly applies to another gas line, in other words,
4 looping.

5
6 A The general principle
7 applies, yes.

8 Q So that you could for
9 example have a situation where there would be quite
10 dramatic effects as a result of looping, even though
11 the original line did not have these dramatic effects.

12 A I think for reasons that
13 Mr. Hemstock can elucidate, it's unlikely to have a
14 dramatic increase; however, before I hand the mike over
15 to Mr. Hemstock, I'd like to say that the general
16 principle applies and looping would certainly require
17 an environmental impact analysis of the amount of the
incremental increase of the environmental impact.

18 Q Well, Mr. Commissioner,
19 I feel like I'm the chairman of the Huntley-Brinkley
20 Environmental Report, over to you, Chet, but I would
21 like to, if I may, pursue these questions first with
22 Dr. Banfield and then if Mr. Hemstock wishes to comment
23 further I'd be pleased to hear from him.

24
25 As a matter of principle then
26 you would agree that the second effect, for example,
27 of looping would be particularly severe, as a potential,
28 would be particularly severe if the land has not,
29 shall we say, stabilized following the first construction
30 activity.

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1 A Well, there are certain
2 factors involved in looping which mitigate against a
3 dramatic incremental increase, and the point you've
4 raised is, of course, of looping, the second gas line
5 would be put in the same right-of-way as the first gas
6 line, so this is one of the mitigating factors. However,
7 the point you've raised, if there had been some terrain
8 instability found during the construction of the first
9 gas pipeline, monitoring should make the people aware
10 of the problem when they came to that site in a second
11 gas line.

12 Q So at least one of the
13 advantages of having a time gap between the original
14 construction and the second, whether it's looping or
15 putting a line along beside a highway is that you've
16 got some experience.

17 A Right.

18 Q The point that you
19 concentrate on, though, as a matter of principle is
20 that you can't state as an assumption that because
21 the first system has had no impact or little impact or
22 a certain impact, that the same system in the same area
23 would either have the same impact or less of an impact.

24 A That's correct, sir.
25 That's why I believe the second system deserves another
26 environmental impact study.

27 Q And this would be true if
28 you operated on the same line and even if you in fact
29 used some of the same facilities, it would mitigate
30 but the principle still applies.

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
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A Yes sir.

Q So suggesting that by going
into the same area and using the same pads that the
impact of the second time round would be much less is
not necessarily so.

A Well, that is another one
of the mitigating factors, the fact that there would not
be second compressor station sites or pads. The second
compressors would be built on the pads of the first
system, however, since they were second compressors
what would have to be investigated was whether as
appears to me logical at the moment, that that would
be double the noise output from that particular pad.
That is the sort of problem I foresee.

Q Now you suggested to us
that putting the gas line along the Alcan Highway, on
the Fairbanks corridor may get you caught up in this
syngistic problem; but you're still caught up in this
problem, are you not, even if you go across the North
Slope?

A Well, I think the differ-
ence there is that if the pipeline were to be construc-
ted across the North Slope, then you're dealing with
the primary impact of the first facility.

Q But until you've studied
this in detail do you still have the cumulative effect
whether you put the gas pipeline where the highway
exists or you in fact construct a gas pipeline and then
have to construct a road with it for access and trans-
port and so on.

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty,
Cross-Exam by Anthony

1
2 A Well, in the submission
3 of the client, before this Commission, the necessary
4 temporary roads that are proposed during the construction
5 period for the pipeline have been studied and assessed
6 environmentally.

7 Q The point still is, though,
8 is it not, that if you have to construct a road and a
9 highway across the North Slope in order to put in your
10 facilities and operate and maintain your gas pipeline
11 you still have this cumulative effect.

12 A If you're speaking of a
13 permanent road, I'd agree with you.

14 Q Mr. Dau, do I understand
15 that your position you're taking is that in fact a road
16 will not be required across the North Slope for construc-
17 tion, operation or maintenance of the proposed pipeline?

18 WITNESS DAU: That's correct,
19 sir.

20 Q And you're able to state at
21 this time unconditionally that there will be no need
22 for a road across the North Slope of the Yukon?

23 A That's my opinion, sir,
24 yes.

25 Q And you're aware of the
26 fact that the Alyeska Highway in fact -- or the Alyeska
27 Pipeline has required and used all of the road through-
28 out its entire length?

29 A Yes.

30 Q And that in fact at
Prudhoe Bay there is now an east-west haul road along

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1 the shore because of the activities just at Prudhoe
2 Bay itself.

3
4 A I was not aware of that.

5 Q And you are also
6 aware that there is conflicting expert opinion as
7 to the necessity of a road if a pipeline is to be con-
8 structed along the North Slope.

9 A I am aware of that.

10 Q We have your opinion now
11 that there will never be a road associated with this
12 pipeline across the North Slope.

13 A That is correct.

14 Q Well, I've made a note
15 of that. I may someday refer back to that. Going back
16 to you, Dr. Banfield, in fact would you not agree that
17 the possibilities and the dangers inherent in construct-
18 ing haul roads or temporary roads and/or permanent
19 ~~roads~~ if the situation should so develop, and the gas pipeline simul-
20 taneously, there's more potential danger in that situation
21 in constructing a line along an existing highway.

22 WITNESS BANFIELD: I'm afraid
23 you have made too many assumptions for me to agree with
24 you. I differentiate in my mind very clearly the
25 differences between the environmental impact of a snow
26 road or an ice road or a winter road from a permanent
27 gravel road.

28 Q Well then take both
29 situations. Take the situation where you have a tem-
30 porary road and give me your assessment of the cumulative

Dau, O'Rourke, Williams, Clark
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1 effect of both, and then let's deal with them on the
2 basis of a permanent road in the North Slope.

3 A When one considers the
4 environmental impact of a snow road, one has an advant-
5 age going with you as far as the biotic components of
6 the environment are concerned, vegetation and animals,
7 that it's built during winter, a period of time
8 when the plants are quiescent and typically boreal and
9 Arctic ecosystems at a period of time when most of the
10 animal life migrate away. So that is entirely different
11 from a permanent road that would be used year-round,
12 and it's quite clear to me that the cumulative impact
13 of a pipeline with an associated permanent road are
14 much greater than a pipeline associated with a winter
15 snow road, and it's for that reason that the environmen-
16 tal consultants to this project have strongly supported
17 the concept of building a pipeline from snow roads.

18 Q And your environmental
19 evaluation strongly is on the assumption or on the basis
20 that there would not be a permanent road.

21 A That is true.

22 Q I would gather then that
23 if in fact the road was required, your environmental
24 assessment may be quite different.

25 A Yes.

26 Q But you would agree with
27 me, would you not, that there are at least a number of
28 advantages of following an existing road. No. 1, you've
29 already in fact pointed out, and that is that you've
30 got some experience, some observations.

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

A Yes sir.

Q Secondly, you have some
engineering data, probably on the ground assembling and
some construction activity itself that you can relate
to and observe.

A That might be helpful, but
you must remember that a pipeline, any sort of pipeline
would never be built on the shoulder of the road. You
will have to tell me at what distance you are proposing
to build the pipeline -- 100 yards or 10 miles away from
the road.

Q But you would agree with
me, would you not, if there had been complete soil
sampling and environmental assessment and terrain analy-
sis in great detail, along, for example, the Alyeska
line, that that would give you some assistance in
determining impact, both on physical and living
environment, if you built a gas line.

A I am not an expert in
terrain and I really wouldn't -- I couldn't comment on
that. I expect that where the proposed right-of-way was
some distance away from the road, that geoscientists
would want their own borings on the proposed right-of-
way.

Q Well, let's deal then with
animals. Would you go with me this far, if the exper-
ience had been that the first line -- the result of the
first line--for example certain species of mammals had
left that area entirely, would you not agree that the
fact that the line had -- that the highway or the

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1 original line had existed there results in less impact
2 than if you'd gone into a new area?

3
4 A Yes, you have -- there's
5 a mathematical modelling on this and you have hit the,
6 of course, the worse case example, and that is the only
7 case in which the incremental impact of the second
8 right-of-way is unimportant, when in fact the impact
9 of the first facility was beyond the capabilities of the
10 environment to withstand. The other point I'd like
11 to mention is, of course, the responses of these
12 various animals depends a great deal on their territor-
13 ial behaviour, their range. If the building of the
14 Alaska Highway discouraged moose from a corridor, we'll
15 say five miles each side, that is quite possible. How-
16 ever, it's unlikely that it would have disturbed small
17 rodents more than a few hundred yards off the highway.

18 Q Another aspect of this
19 question of the synergistic effect is you would agree
20 with me, would you, that in determining the route, the
21 first route, for example your gas pipeline route, that
22 you may foreclose that area to other pipeline routes
23 because of this effect?

24 A Yes, I think that follows.

25 Q And so you may, for
26 example, have a number of options as you've outlined
27 on the map, for a gas pipeline route, but take, for
28 example, an oil pipeline route or a highway because of
29 other requirements, does not have those options avail-
30 able. Now if you were to select for your route an
area, one of many options for a gas line that was the

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1 only possible route for a highway, you would foreclose
2 the highway or an oil pipeline from going into that
3 area.

4 A This is one of the impor-
5 tant factors. Again distance is obviously important,
6 how far have you -- how wide a corridor have you fore-
7 closed? The other factor is perhaps the other facility,
8 a highway or an oil pipeline might not actually be int-
9 erested in the same terrain parameters of following the
10 particular routing of the first facility. I mentioned
11 yesterday afternoon that I thought this was an important
12 concept and needed study. I can't say that I have the
13 answer.

14 Q I think we are trying to explore the pro-
15 blems at this point. Perhaps if I can give a concrete example
16 so I understand what we've just been talking about this
17 last few moments, is that if the people in the Mackenzie
18 Delta, for example, or the Mackenzie Valley should
19 decide that they want a highway linking their communi-
20 ties, that the location of that highway being obviously
21 somewhat restricted because it would need to be
22 approximate to the communities, that that highway may
23 either be foreclosed from being built because of the
24 synergistic effect of an area that you already use
25 for your gas pipeline, or secondly, the environmental
26 effects of that highway may be dramatically increased
27 because of the prior existence of your pipeline.

28 Q Now using that for an example
29 that's really what you're saying as a matter of
30 principle.

A Yes, I think that's quite

Dau, O'Rourke, Williams Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1 clear. To take another example, in a developed city if
2 you put hydro lines down one side of the street, then
3 you put the telephone line on another, or if you have
4 an underground gas facilities on one side of the road
5 quite often the water main is on another, I'm sure that
6 if the first facility does in fact opt that particular
7 route for a second facility.

8 Q Undoubtedly we'll be get-
9 ting into this in some considerable detail at the corri-
10 dor phase of the Inquiry, but I think at this point you
11 certainly convinced me of the importance of this concept.
12 Would you tell me, therefore, what this synergistic
13 effect is of a highway and a gas pipeline on the Mackenzie
14 Valley?

15 A Well, of course, that's
16 impossible to do. The environmental studies connected
17 with the highway have not been made public so I have
18 nothing to work on.

19 Q No, but you've convinced
20 me of the importance of this effect and you are the
21 environmental consultant to a gas pipeline who are to
22 evaluate the impact of their pipeline, and therefore
23 I'm asking you what evaluation you've done?

24 A For several years I have
25 informed the executive people in CAGSL as well as in
26 N.E.S. of the problem, and they have been thoroughly
27 aware in all their planning of this particular problem;
28 but for the reason I just gave you it's been very
29 difficult to -- I've also tried to get some information
30 on the environmental impact studies conducted in

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1 connection with the highway but I've been unable to.

2
3 Q So you can't tell the
4 Inquiry anything about the effect of a gas pipeline
5 on a highway in the Mackenzie Valley.

6 A My only advice was to
7 stay away from it as far as possible.

8 Q What about the effect of
9 a -- I think I asked Dr. Banfield if he could tell this
10 Inquiry anything about the synergistic effect of a
11 highway and gas pipeline on the Mackenzie Valley.

12 THE COMMISSIONER: You say,
13 "Stay away from it." Well, they've already got a
14 highway past Fort Simpson and you want to build a gas
15 pipeline all the way along the valley. What are you
16 saying you should stay away from, the highway or the
17 pipeline?

18 A No, I meant that the
19 pipeline should stay away from the immediate vicinity
20 of the highway as much as possible.

21 Q You are separating the
22 two modes of transportation?

23 A Yes sir.

24 THE COMMISSIONER: All right.

25 MR. ANTHONY: Q But you have not
26 evaluated the cumulative effect at any point along that
27 line, along your gas line.

28 A AT one particular river
29 crossing, the Donnelly River, we have conducted some
30 studies of what we think the combined impact would be

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty-
Cross-Exam by Anthony

1 of the highway and a pipeline because both crossings are
2 very close together, and the fisheries biologists have
3 spent considerable time trying to calculate what the
4 combined impact will be.

5 Q Is that in the form of a
6 report that's available to this Inquiry for considera-
7 tion?

8 A I don't believe the report
9 has been written yet -- has been completed yet. They
10 are continuing studies of a monitoring nature. Chick
11 Lake is the chief site for our continuing monitoring
12 studies, and this is one of the goals of that particular
13 study.

14 Q Do you have any indication
15 of when that study of that particular location will be
16 available?

17 WITNESS HEMSTOCK: The studies
18 as Dr. Banfield has mentioned, of Chick Lake, are
19 continuing and those studies are reported in progress
20 reports. We would intend to continue the -- since it
21 is a monitoring site -- continue evaluating that site
22 right through the design and construction period and
23 into the operation and maintenance time. So it will be
24 a continuing study for several years, and the results
25 to date, the results to the end of 1974 are available
26 in progress reports.

27 Q And are those progress
28 reports available to this Inquiry for consideration?

29 A Yes sir.
30

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1
2 MR. ANTHONY: I wonder if my
3 friend would agree to make those available to this
4 Inquiry?

5 MR. MARSHALL: Certainly.

6 THE COMMISSIONER: Where is the
7 Donnelly River, is that near Chick Lake?

8 A Yes, it flows out of
9 Chick Lake at a place called Gibson Gap along the
10 Hoiett(?) River.

11 THE COMMISSIONER: Yes, I've
12 been there.

13 MR. ANTHONY: Q O.K., except
14 for that location could you tell us of any other studies
15 of the cumulative or synergistic effect along the
16 Mackenzie Valley?

17 WITNESS BANFIELD: I don't
18 recall any other studies. Some have been proposed but
19 not supported in the past.

20 Q We are to consider the
21 question, too, of alternate routes that are available
22 and you've been commenting on this. Could you tell us
23 of the synergistic effect of putting a gas pipeline
24 along the Alyeska oil line? Have you done any studies
25 of that?

26 A No, we have not been
27 able to study that, but I would draw your attention to
28 the fact that there is an American body that, organization
29 that is monitoring the environmental impact of their
30 construction of the Alyeska Pipeline and when that
information is available and knowing our own assessment

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1 of environmental impact of construction of a gas pipeline,
2 I think we could put the two of them together and come
3 up with some analysis.

4 Q But the comments you have
5 made now of the importance of this effect, you haven't
6 any information or done any study of this at this time.

7 A No sir.

8 Q O.K., in the Mackenzie
9 Delta area there is some substantial information now
10 about the gathering facilities that are going to be
11 placed in that area. These facilities are an outgrowth
12 of your pipeline. Have you considered the synergistic
13 effect of these facilities?

14 A We have reviewed -- we
15 have copies of the reports of the environmental studies
16 that have been conducted in the delta. I can't quite
17 see -- almost a pun -- the connection, sir, it's linear
18 relationship rather than a parallel relationship between
19 the collecting facilities and the pipeline that carries
20 a reserve -- or the gas reserves from the field to the
21 consumer.

22 Q But certainly there are
23 going to be a network of gathering lines and other
24 activities in the Mackenzie Delta area, there will be
25 a pipeline activity of sorts, or a development activity
26 of sorts, in that area as an outgrowth of your proposed
27 gas pipeline, so you've got two activities going together.
28 Have you studied the combined effect of both these
29 activities?
30

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1
2 A I don't believe that they
3 have been studied with this particular concern in mind.
4 They have been looked at from a straight cumulative
5 effect, as you've described. We have considered this
6 more a secondary effect of the industry development in
7 the delta as being a secondary effect of a pipeline, as
8 you've described. It has not been considered cumulative
9 in this corridor concept, which is primarily a spacial
10 concern.

11 Q Are there any studies or
12 reports to indicate these cumulative studies in the
13 delta facilities in the pipeline that you've heard?

14 A No, I said I wasn't
15 aware of any studies of a cumulative effect, just of
16 the secondary effect.

17 Q O.K. then, let's deal
18 with your own activities. You're going to be looping;
19 have you done any studies to determine the cumulative
20 or synergistic or inter-related effects of your main-
21 line construction and your subsequent looping?

22 A Not any detailed studies.
23 I've made enquiries of the officials of the CAGSL
24 group as to what is involved in looping to understand
25 the environmental concerns of that program, but I've
26 not conducted any detailed studies.

27 Q So you would for example
28 not be able to give us any indication of your opinion
29 as to, for example, how long a time there should be
30 between the original construction and any subsequent

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1 looping?

2
3 A No sir, I don't see that
4 as my contribution to the proposal. I think it's more
5 apt to be the other way around, that when the gas supp-
6 lies merit a looping program, that then it will be neces-
7 sary to present an environmental study of what is
8 involved in looping and at that time this problem will
9 probably be rather thoroughly addressed. Looping is
10 some years down the line.

11 Q But what good is a study of
12 the effect of looping some years down the line when you
13 have to make a decision as to your route now? Is it
14 not possible that some other route may be the best
15 route if you have to loop, and you take the synergistic
16 effect into consideration?

17 A No, I can't agree, sir.
18 Since we have been able to do quite an unbiased apprai-
19 sal of these various corridors that we're considering,
20 as you've described earlier we're doing the primary
21 or proposing the primary development in these areas
22 and we are able to look at it from the primary input
23 as the primary facility going into these areas.

24 Q But surely if you're
25 going to be looping the mainline and you've described
26 the significance of the synertistic effect, then in
27 comparing any two lines you have to take that into
28 account.

29 A You've mentioned the
30 mainline, of course, because that's where the looping

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1 was first -- would first occur, and I have thought it's
2 rather important that the lateral lines are over-capacity,
3 the lateral lines are in the proposed for crossing
4 tundra zones -- the Prudhoe Bay lateral and the Richards
5 Island lateral. These have been constructed over-capacity
6 which has this environmental advantage that it's on the
7 assessment of those experts to deal with reserves that
8 is considered adequate pipe size for a considerable
9 length of time. Now, the other, the mainline which you
10 have mentioned, up the Mackenzie River, I believe it
11 was in the testimony of Dr. Cowan who pointed out that
12 the Mackenzie River is a very logical boundary. It's
13 like a seam in the mosaic of the ecology of the north
14 and it's a very logical place to put a pipeline because
15 there is very little lateral crossing of the Mackenzie
16 by large animals. Most of the flow is linear, is
17 parallel to the pipeline. As I say, it's like a seam
18 in cloth. If you're going to put a barrier some place,
19 that's the logical place to put it. So from that point
20 of view I'd say that the risks of this cumulative impact
21 of two or more facilities in the same corridor are
22 most easily accommodated in the -- on the mainline in
23 the upper part of the Mackenzie Valley.

24 Q So there is a risk that
25 when you do your synergistic studies prior to looping
26 and you find out that you made a terrible mistake, you
27 may just find that out.

28 A Certainly the risk exists.
29 I know where one finds that out about highways at this
30

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1 point.

2
3 Q You're prepared to take
4 that risk and go ahead and make your comments about the
5 effects of this pipeling, though, at this time.

6 A Yes, sir, in any system-
7 atic study of a large system one has to put boundaries
8 on what you study. This is the systematic approach. We
9 realize no system is closed, a closed system. The
10 environment affects it; but in order to study it in
11 detail it is the logical systempatic approach to put
12 boundaries on this system, and you have indicated
13 some of the boundaries that we have put on this overall
14 system study.

15 Q Dr. Banfield, again on a
16 matter of principle, would you expect this synergistic
17 effect to apply if there was to be an oil pipeline as
18 well as a gas pipeline along the North Slope?

19 A Yes sir.

20 Q In fact, it's likely it
21 would be a cumulative rather than a cancelling out effect.

22 A As I indicated, it's
23 primarily a conceptual model at the moment. It needs
24 study. I think it could be a multlicative or synergistic
25 rather than a simply additive effect.

26 Q Well, Mr. Dau, I think
27 in your earlier evidence it was clear that you were
28 involved in the initial selection of the North Slope as
29 the route for the gas pipeline. Can you tell me what
30 you know about the likely location of an oil pipeline?

Dau, D'Rourke, Williams, Clark,
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Cross-Exam by Anthony

1 WITNESS DAU: The only knowledge
2 of any oil pipeline across the North Slope was the
3 studies that were done by Mackenzie Valley Pipeline
4 Research.

5 Q And this was the informa-
6 tion -- what information did you have in 1972 when you
7 were making this route selection?

8 A That's all, sir.

9 Q And what about now? What
10 information do you have now about the proposed plans for
11 an oil pipeline across the area you want to traverse?

12 A I have no knowledge of an
13 oil pipeline.

14 Q Now the importance of the
15 inter-relationship on the North Slope between a gas
16 pipeline and oil pipeline has been dramatically illus-
17 trated and discussed. Don't you have to know now, if
18 you're going to be talking to this Inquiry, in 1975
19 about the likely impact of the gas pipeline, don't
20 you have to know the current plans and location of an
21 oil pipeline?

22 A I'm not aware of any
23 current plans to build an oil pipeline across the North
24 Slope, sir.

25 Q Well, Mr. Dau, it seems
26 that through press and information available that there
27 are all sorts of plans for a proposed oil pipeline.
28 You're not aware of any plans to put an oil pipeline in
29 at this time?

30 A No sir, I'm not aware of

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1 any plans of anyone that's studying in detail a pipeline
2 across the North Slope.

3 Q Well, Mr. Dau, let me
4 just give you some information and get your comment on
5 it then, if I may.

6 A All right.

7 Q I refer to a memorandum
8 to the Advisory Committee on Northern Development and
9 this is what they have to say, and I'd like to hear
10 what you have to say:

11 "Beaufort-Delta Oil --"

12 THE COMMISSIONER: Excuse me,
13 a memorandum to the Advisory Committee on Northern
14 Development?

15 MR. ANTHONY: Yes, that's
16 right, a memorandum to the members of the General
17 Committee, Advisory Committee on Northern Development,
18 from Mr. G.S. Murray, Chairman, General Committee.

19 THE COMMISSIONER: And that's
20 the committee of Deputy Ministers of the Government of
21 Canada, is it?

22 MR. ANTHONY: That's correct.

23 THE COMMISSIONER: And who is
24 Mr. Murray?

25 MR. ANTHONY: He is the chair-
26 man of the General Committee, which is under the
27 Advisory Committee of Northern Affairs.

28 THE COMMISSIONER: What's the
29 date of that memorandum?
30

Dau, O'Rourke, Williams, Clark,
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MR. ANTHONY: July 15th, 1975.

Let me just read a portion of it.

if I may:

"Beaufort Delta ^{Oil} Project Limited. The Beaufort
Delta ^{Oil} Project Limited has announced to the govern-
ment at an informal interdepartmental meeting on
May 16th, 1975, its intention to prepare and sub-
mit by 1977 an application to the Department and
to the National Energy Board for authority to
construct an oil pipeline from the Beaufort Sea
and the Mackenzie Delta up the Mackenzie Valley
into Southern Canada. The application for
completion of construction --"

sorry,

"The target date for completion of construction
is 1983. The application timing, of course, is
contingent on on-going petroleum exploration
in the delta and Beaufort Sea proving up
sufficient oil reserves to support a large
diameter oil pipeline. Members of the group
are Imperial Oil Limited, Shell Canada Limited,
Gulf Oil Canada Limited, Trans-Mountain Pipeline
Company Limited, and Interprovincial Pipeline
Company, with headquarters in Calgary."

You're familiar with these companies, are you?

A Yes.

Q

"These companies were formerly associated with
the Mackenzie Valley Pipeline Research Limited
which in 1969, prior to the Alyeska Pipeline

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1 decision, undertook a 3-year program of studies,
2 research, test facilities and engineering assess-
3 ment to establish the technical and environmental
4 feasibility of an oil pipeline from Prudhoe Bay
5 and the Mackenzie Delta to Southern U.S. and
6 Canadian markets. The report entitled, 'Arctic
7 Oil Pipeline feasibility study' was presented to
8 the government in December of 1972."

9 That's the report that you in fact referred to?

10 A Yes.

11 Q And the memorandum --
12 and I'll summarize -- merely agrees that a committee
13 would be set up to study, investigate and report on
14 the proposal and it says that:

15 "The committee could from time to time review
16 the government's position on the project and
17 also serve as a base for providing advice on
18 broader policy implications. It would not, of
19 course, substitute for the functions of the
20 National Energy Board, but rather concentrate
21 on the social, environmental and economic
22 impact regionally of such a pipeline with a
23 view of recommending appropriate terms and
24 conditions to be attached the grant of a right-
25 of-way."

26 Well, it sounds to me, Mr. Dau, that these companies
27 that you are familiar with and the reports they have
28 done that initially you are familiar with have gone
29 quite a long way in setting up an oil pipeline.

30 A Sir, my understanding of

Dau, O'Rourke, Williams, Clark,
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Cross-Exam by Anthony

1 your question was a pipeline across the North Slope,
2 and my definition of the North Slope is from Prudhoe
3 Bay to the delta. I am well aware that that group is
4 studying a pipeline from the Mackenzie Delta up the
5 Mackenzie Valley.

6 Q Well, they've done more
7 than that. They're indicating they're going to submit
8 an application by 1977 and target day for completion of
9 construction is 1983, and are you --

10 A I've heard that before.
11 Yes.

12 Q Would you indicate then
13 your opinion as to the combined effect of such an oil
14 pipeline down the Mackenzie Valley from the Mackenzie
15 Delta and your proposed gas pipeline?

16 A I don't understand it.
17 In what sense, sir?

18 Q Well, we've just been
19 discussing the fact that you have to consider the
20 combined or the synergistic effects of an oil pipeline
21 and a gas pipeline. You're aware and have been aware
22 of the application to construct an oil pipeline. I'm
23 asking if you can evaluate that?

24 A No, I've not seen their
25 route. I understand -- I'm not aware that they have made
26 an application. They are doing a study. I understand
27 we have provided them with all of the information that
28 we have with respect to route location. I'm not sure
29 how much of the total package of information that we
30 have that has been transferred to them. They certainly

Dau, O'Rourke, Williams, Clark,
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Cross-Exam by Anthony

1 have all our route and they have all our photography
2 and so on, and I'm quite sure that once they get into
3 the route location phase that we will be discussing
4 route locations with them. It's my understanding that
5 they're not at that stage as yet.

6 Q Have you had discussions
7 with them?

8 A I have not had discussions
9 with the Beaufort-Delta group, no, that would be a
10 CAGSL function at this stage.

11 Q Has anybody on the panel
12 any information as to where this imminent application
13 stands at present?

14 MR. MARSHALL: Well, it's not
15 imminent, that's been made clear. I didn't want to
16 interrupt my friend when he was reading leaked documents
17 that they, through their pipeline, have obtained from
18 Cabinet sources or elsewhere, but surely it's made
19 clear by the information that Mr. Anthony has read in
20 that nothing is imminent. There was a study done in
21 1972 and a group has recently been formed that's
22 looking into another pipeline; but to ask this panel
23 of witnesses to give an environmental impact statement
24 on that is asking ^{quite} a bit, even of these gentlemen.

25 MR. ANTHONY: I'm afraid Mr.
26 Marshall completely misunderstands both the source of
27 this information and also the import of the question.
28 I am asking what current knowledge you have of the
29 proposed routing, of the proposed plan, the proposed
30 timing, logistics and everything else of the oil

Dau, O'Rourke, Williams, Clark,
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1 pipeline which is going to be completed about the same
2 time you're completing your gas pipeline, if these people
3 go ahead with their plans.

4 WITNESS DAU: It's my understand-
5 ing that they have, the Beaufort-Delta group, has recently
6 organized; they are acquiring staff, they are assigning
7 or retaining consultants for study in the various
8 areas. But it's my personal opinion that they haven't
9 got any hope of meeting that time schedule that you're
10 talking about.

11 Q Well, --

12 THE COMMISSIONER: That has a
13 familiar ring to it.

14 (LAUGHTER)

15 MR. ANTHONY: -- as of July 16th
16 they seem to be convinced of that.

17 Q Mr. Hemstock, you have
18 been with Imperial Oil since 1949. Can you not get
19 any information to Mr. Dau or to any members here about
20 their plans for an oil pipeline?

21 WITNESS HEMSTOCK: I'm now
22 spending my time with Arctic Gas and I have no informa-
23 tion of what Imperial Oil's plans are, or the group;
24 but I should say that I have discussed with their
25 director of environmental studies the kinds of studies
26 that they would be doing and made sure that they have
27 the information which is available from Arctic Gas with
28 regard to the Mackenzie Valley routing. As Mr. Dau
29 mentioned, we have of course the 1972 study of Macken-
30 zie Valley Study Limited, and there is no obvious

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1 difficulty that we can see with the two pipelines in
2 the same general corridor. The approach we take is
3 that --

4 THE COMMISSIONER: Excuse me,
5 Mr. Hemstock -- Dr. Hemstock.

6 A It's Mister.

7 Q You say that you can see
8 no difficulty. Now, according to Mr. Horte we're going
9 to have the first gas pipeline, then it is very likely
10 that we will have a second gas pipeline, and now there
11 is a group that is certainly talking a good fight about
12 an oil pipeline, even though Mr. Dau may be skeptical,
13 and you have just said to me that you see no difficulty
14 about including this oil pipeline in the Mackenzie Valley
15 corridor, and yet there have been no environmental
16 studies at all carried out. They haven't even retained
17 a consultant.

18 WITNESS HEMSTOCK: Well, perhaps
19 a point that I should have emphasized is that Arctic
20 Gas has done a great number of baseline studies which
21 tell us what the terrain and the wildlife conditions
22 -- fisheries conditions are along that general corridor.
23 Those studies will be of use to Mackenzie Valley in
24 determining the impact of their pipeline. We have
25 looked at the original and very tentative routing that
26 the Mackenzie Valley Study Limited drew on their map
27 and again there is apparently no difficulty of handling
28 the two lines in the general corridor area. It's
29 obvious, of course, that the oil pipeline in the engin-
30 eering would look for a somewhat different routing than

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1 would a gas pipeline. If it's a hot line it would --

2 Q It might have to be
3 elevated.

4 A -- it would have to be
5 elevated in certain areas. They would tend to avoid
6 high ice content permafrost where they could.

7 Q And its length would be
8 greater than the length of the Alyeska Pipeline.

9 A That is correct; but
10 there are several different engineering factors with
11 regard to an oil pipeline. Again with regard to the
12 possibility of looping of a gas line in the future,
13 I think there are several pretty important factors, and
14 Dr. Banfield mentioned some of them, and he made the
15 point that it should not be assumed that the incremental
16 impact is small if you need another study; but for two
17 similar moves -- modes of transportation, that is the
18 looping of a presently existing line there are a lot of
19 factors which mitigate against synergistic effects that
20 Dr. Banfield talked about. For instance, you would
21 need very little new right-of-way. You'd use the same
22 right-of-way. You'd use the same borrow areas. You
23 would not require additional staging sites, you'd use
24 the same ones over. You'd use the same compressor
25 stations, the same air strips, the same communications
26 system. You'd have the same surveillance required for
27 two lines as you would for one in the operation and
28 maintenance. In terms of manpower, though, you would
29 need additional manpower, so there would be an incre-
30 mental impact in the manpower looking after the two

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Hemstock, Banfield, Trusty
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1 lines; but --

2 THE COMMISSIONER: Well, let
3 me stop you for a moment, Mr. Hemstock. Quite apart
4 from the impact of the second gas pipeline once
5 installed, or even the impact of a hot oil pipeline,
6 elevated perhaps along many hundreds of miles once
7 installed, you'd have a construction project that, if
8 it were to begin next year, and I think the remarks of
9 Mr. Dau about the Beaufort-Delta group might very well
10 apply to the position^{of} Arctic Gas formerly taken that
11 it seeks approval early in 1976. But you have a pro-
12 ject that, if it were to begin next year, would last
13 four or five years. The second gas pipeline, according
14 to Mr. Horte, would then be built in four or five years
15 after that; a hot oil pipeline, if one were built accord-
16 ing to that schedule or let's just add what, two years,
17 three years, four years, five years to that schedule,
18 you'd still have a construction project that might
19 well last over a period of ten or fifteen or even 20
20 years, if you consider the development of that Mackenzie
21 Valley transportation corridor in that way.

22 Now the Federal Government in
23 the pipeline guidelines has imposed upon Arctic Gas
24 and now upon Foothills, whose application has been
25 referred to the Inquiry, the obligation to advance
26 evidence, and counsel for Arctic Gas has indicated
27 at an earlier stage that that evidence -- and I expect
28 to receive the same undertaking in due course from
29 counsel from Foothills -- that that evidence will be
30 brought before the Inquiry later in the year. That is

Dau, O'Rourke, Williams, Clark,
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1 evidence not in the same detail as we have had it in
2 relation to a gas pipeline, but evidence of the impact
3 of an oil pipeline if one were to be built along the
4 same route as the gas pipeline; and Mr. Anthony, I
5 think we all know about the Beaufort-Delta group having
6 been established earlier in the year, with the support
7 of the three producers in the delta, and the carriers.

8 But it seems to me that we
9 are obliged, surely you and Dr. Banfield as environmen-
10 talists would take the view that you can't just chop
11 this thing up into five-year components, that you have
12 to try to see what the whole of this development would
13 mean in environmental terms to the Mackenzie Valley, and
14 you have to try to assess that now so far as you can.

15 Q Would you agree with that
16 way of looking at this?

17 WITNESS HEMSTOCK: Yes, I
18 agree with that way of looking at it, and I agree that
19 we will attempt to provide that information to you.
20 The difficulty, of course, is that as you project
21 these projects further and further into the future, you
22 become very speculative about what might happen so that
23 you have to provide perhaps two or three cases in
24 order to get a range of what might happen. But we
25 would certainly --

26 Q Well, I'm sure in
27 projecting this project of yours, notwithstanding the
28 volume of material, isn't an easy business, and it's
29 no doubt more difficult for the second gas pipeline
30 and the hot oil pipeline. They're building a hot

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1 oil pipeline in Alaska, we've all been over there to
2 see what's going on. You get assistance wherever you
3 can get it; I wonder if that document could be marked
4 as an exhibit? Would you object to that?

5 MR. ANTHONY: I have a very
6 badly scratched up copy, but I can undertake to provide
7 one at -- with comments in the margin which perhaps
8 are unfair, so perhaps I could undertake to file it
9 with the Inquiry when it resumes in Yellowknife on
10 Monday.

11 THE COMMISSIONER: I was going
12 to say you might get another copy more swiftly than
13 that from your source, but --

14 MR. ANTHONY: Perhaps Mr.
15 Marshall may have one for you.

16 MR. MARSHALL: We could have a photo
17 copy of his run-off, but--

18 MR. ANTHONY: It seems that
19 there are copies everywhere so I certainly will try.
20 Mr. Commissioner, I think you have assisted me by
21 moving the matter to the point that I wanted to make,
22 but I wonder if I could tidy it up with just one
23 bit, and that is --

24 THE COMMISSIONER: Please tidy
25 it up, by all means.

26 MR. ANTHONY: Mr. Hemstock --

27 THE COMMISSIONER: It's had a
28 number of untidy aspects to it.

29 MR. ANTHONY: Q Mr. Hemstock,
30 you mentioned that you have seen a map of the proposed

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1 route down the Mackenzie and I assume have other sources
2 of information, and you've indicated here it's very
3 important that you look at all these things before you
4 assess the impact of your proposal as it relates to
5 others; I'm wondering if we can have a copy of that
6 map and you could provide us with whatever information
7 has been provided to you as a consultant to Arctic
8 Gas that would assist us as we try to look at the same
9 problems?

10 WITNESS HEMSTOCK: The map that
11 I was referring to is the map that is provided in the
12 Mackenzie Valley Study Report, and Dr. Clark and his
13 staff have had a look at that alignment and compared
14 it with the proposed alignment for Arctic Gas. He might
15 like to comment on the proximity of the two.

16 Q Well, before you do,
17 could I just ask one further question of you, and that
18 is are you saying that you have no other information
19 than what was provided in December of 1972?

20 A That's correct, I have
21 no further information than the information provided
22 in the original study.

23 Q Now we have Imperial
24 Oil who obviously seems to be a party everywhere in
25 what's going on, and you say that there has been no
26 communication to anybody at Arctic Gas in the form of
27 reports or notification to the consultants of Arctic
28 Gas beyond what is publicly available since December
29 of '72?

30 A That's correct. My

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1 information is that there have been no further studies
2 done, Mr. Dau indicated they are still building their
3 staff and I believe that they have done no field
4 studies. Certainly we have no additional information
5 with regard to the route.

6 Q So as far as you are
7 aware, and as far as your planning is aware, and as
8 far as your environmental assessment is aware, nothing
9 has happened since December '72. They are thinking
10 of an application and you have no further information.

11 A Other than we have dis-
12 cussed passing our information on environmental and
13 engineering studies to make sure that they have the
14 benefit of that, and I'm not aware of any additional
15 studies that they have undertaken so far.

16 Q Have they agreed to pro-
17 vide -- reciprocate and provide you with the information
18 that they have undertaken?

19 A I'm not aware of that,
20 of any agreement along that line.

21 Q So they may go ahead
22 with this application to construct it about the same
23 time you're constructing the Mackenzie Valley and you
24 won't know a thing about it.

25 A I am sure that if they
26 do additional studies, when they do them that we will
27 be able to obtain that information.

28 Q Well, you're with Imperial
29 Oil. Can you tell me, as of this time now then, Dr.
30

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1 Banfield, if you are in a position to provide this
2 Inquiry with an assessment of the suitability of the route
3 you propose, having regard for the routings of any other
4 pipeline in either terrain engineering consequences or
5 environmental social consequences?

6 WITNESS BANFIELD: I'm sorry,
7 sir, I don't understand the question.

8 Q The question is whether
9 you now, as an environmental advisor to Arctic Gas,
10 Arctic Gas as a whole, are able to provide this Inquiry
11 at this time with an assessment of the suitability of
12 your prime route to the routing of any other pipeline
13 in terms of environmental, social or terrain engineer-
14 ing consequences?

15 A The key phrase, I under-
16 stand, is "any other pipeline" and I am not in a posi-
17 tion to provide an environmental assessment.

18 Q Are you presently conduct-
19 ing any studies that will enable you to provide that
20 assessment?

21 A The other proposed pipe-
22 lines in this general area of Northwestern North America
23 that I am aware of generally speaking, other routes.

24 Q Yes. Are you conducting
25 studies that will enable you to provide the assessments
26 you say you are not now able to provide?

27 A No sir, I've not been
28 invited to do so.

29 Q Anybody within Arctic Gas
30 or any of their consultants conducting the studies that

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1 will enable you to provide that assessment?

2 WITNESS CLARK:

3 A Certainly with respect to
4 terrain engineering, we are.

5 Q Would you indicate the
6 nature of those studies?

7 A Well, some time ago with
8 respect to the oil line, in fact before the formation
9 of the Beaufort-Delta group, our group and particularly
10 on one occasion Dr. Mollard, Dr. Morgenstern and myself
11 looked at our alignment relative to the information we
12 had at that time on the Mackenzie Valley routing, as
13 well as other potential alignments that they might
14 select to see what the inter-action between the two
15 lines might be, and if we could identify any areas
16 where there would be some type of impediment to either
17 their line or our line, and we could see from a terrain
18 point of view no areas that would present insurmountable
difficulties.

19 Q Would you describe what
20 you mean by "impediment"?

21 A Oh, any location where,
22 because of the existence of one line, the inter-action
23 between the two would prevent another one from being
24 built.

25 Q Would this be questions
26 for example, of whether or not there was enough gravel
27 for both of you to build your lines?

28 A More so from the point
29 of view of, say, slope stability, where a hot oil line
30 existed that might have some thawing associated with

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1 it, whereby a cold gas line has freezing associated
2 with it, the inter-action of that has to be taken into
3 account. We could not identify any areas where the
4 difficulty would be insurmountable.

5 Q Do you have any report or
6 study or memorandum which you can refer to this Inquiry
7 that outlines the study and conclusions?

8 A No, just what I've given
9 you now.

10 Q And what was the nature
11 of this study? Was it just looking at a map?

12 A We used our alignment
13 sheets and of course with the background knowledge of
14 what we had in our minds from the geotechnical work and
15 types of analysis that had been carried out, and we've
16 provided you with a multitude of reports on these, it
17 was with this background that we made that assessment.'

18 Q When was this done?

19 A It was done sometime last
20 spring, I believe; but we have tried to keep current
21 with what other people are doing in the Mackenzie Valley
22 or are proposing to do. You asked if we could provide
23 you with maps showing the other routes. We did in fact
24 do that in Yellowknife. We gave you a set of alignment
25 sheets, that you asked for there.

26 Q M-hm.

27 A That had on the highway
28 and the oil line as we knew it at that time.

29 Q I was hoping that we were
30 current.

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1
2 A And that was the basis of our infor-
3 mation
4 'I don't know how much things have changed since that
5 time. We try to maintain communications with the D.P.W.
6 to find out if their thinking with regards to routing
7 have changed. I believe we are ^{as}current as we can be.

8 Q This comparison of align-
9 ment sheets to look for impediments, that was done by
10 yourself, was it?

11 A And Dr. Morgenstern and
12 Dr. Mollard, we jointly looked at these.

13 Q And did you discuss this
14 with -- was there not anybody from the oil pipeline
15 people to discuss whether in their point of view there
16 were any impediments?

17 A As I say, at that time
18 the group was not formed. It was before they put the
19 group together. However, I should point out that as
20 Mr. Dau said, the group is now being formed. I know
21 that Dr. Morgenstern is consulting to that group. I
22 know that Dr. Mollard is consulting to that group, and
23 I know that Dr. Cooper is consulting to that group, and
24 I know that my own parent company, R.M. Hardy &
25 Associates, and my colleagues within my company, are
26 consulting with that group. We do talk and we do know
27 where they're at now.

28 Q Great. Would you tell us?

29 A Yes. They have put
30 together a group of very well-qualified experts.

(LAUGHTER)

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1 And they are now starting to do the engineering, they
2 are starting to look at route alignment. I don't believe
3 they have had a reconnaissance yet. They may have had
4 but I'm not aware of it. Certainly my colleagues
5 will be involved with it and I'm sure that the inter-
6 action aspect will be at the forefront all the time
7 there.

8 Q Once again we have the
9 valuable inter-action at the terrain and engineering
10 level. What about you, Mr. Hemstock, have you got the
11 same working relationship that will enable you to
12 be current and I assume therefore will provide this
13 Inquiry with up-to-date current information as things
14 go on?

15 WITNESS HEMSTOCK: Yes, Mr.
16 Wilkin, who was formerly the chairman of the Envir on-
17 mental Advisory Committee to Arctic Gas, is now the
18 environmental director for the Beaufort-Delta group
19 and he has hired some of the same well-qualified
20 consultants that we've been hearing about, to advise
21 him on the location and environmental concerns on
22 the oil pipeline, and so far as I am aware, though,
23 they are still at the stage that they are, that any
24 available information that's been gathered with our
25 project and others along the Mackenzie Valley, and
26 they have not undertaken any studies on their own.

27 MR. ANTHONY: I'll be moving
28 onto another point, Mr. Commissioner. Would you like
29 me to proceed?

30 THE COMMISSIONER: Yes, I

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1 think we should have that document marked. I'd like to
2 see it, and I don't think I will be irremediably corrup-
3 ted by the exposure to whatever it is you wrote in the
4 margin.

5 MR. ANTHONY: Well, sir, as I
6 say --

7 THE COMMISSIONER: It's not
8 about me, is it?

9 (LAUGHTER)

10 MR. ANTHONY: Well, in that
11 case I give it. No, I now have a copy that can be
12 filed as an exhibit and I can do so now.

13 THE COMMISSIONER: Fine.

14 (DOCUMENT BY G.S. MURRAY DATED JULY 16, 1975
15 MARKED EXHIBIT 155)

16 THE COMMISSIONER: All right,
17 are we ready for coffee? It's a few more minutes
18 until the coffee is ready, Mr. Anthony.

19 MR. ANTHONY: I propose to
20 move then to consider the comments you have made in
21 the isolated context, if I can use a bit of my own
22 assessment, and discuss the impact of the gas pipeline
23 in isolation / ^{from} these other systems that may or may not
24 be constructed, and may or may not have an effect.

25 Q Mr. Dau, you gave
26 evidence that the route was proposed in early 1972,
27 selected and proposed in early 1972. I can assume
28 therefore that you were involved in the question of
29 route selection from the period in 1969 when Prudhoe
30 Bay was -- not discovered -- at least announced, to

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
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1 that period in 1972. Is that correct?

2 WITNESS DAU: Yes, I think
3 the first account of the trip was in 1969.

4 Q And when you first started
5 looking at the question of route selection, what in-
6 structions were you given as to points of supply and
7 points of deliverability?

8 A First with respect to
9 supply, the initial studies were based on a supply in
10 the general Fort Liard area. This was the Pointed
11 Mountain, general Pointed Mountain area. That was
12 very early in the study period. It was then expanded
13 to Prudhoe Bay and then the next expansion was to
14 the delta area. Those were the three supply areas
15 considered, and they went in that stage.

16 Q And when did you start a
17 study of the Alaska as a supply point?

18 A I think it was '69.
19 This is in the records, sir. I gave all this in
20 Yellowknife at some time and I'm not positive of
21 these dates. I'd have to look it up. I think it was
22 '69, '69 or '70, I'm sorry, sir.

23 Q I think that's what the
24 record shows --

25 A Yes.

26 Q -- that you weren't
27 positive, and I was hoping that perhaps you had looked
28 it up; but somewhere between '69 and early '70?

29 A Yes.

30 Q And therefore you did

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1 study the possibility of route selection -- of selecting
2 the appropriate route from Alaska to southern markets.

3
4 A Yes.

5 Q And in those studies what
6 were the various routes that you considered?

7 A Initially the delivery
8 point for all the studies was at Emerson, which is
9 south of Winnipeg, and as a consequence the routes
10 were as direct as possible. To go back to the first
11 study, which was in the Fort Liard area, we looked at
12 routes from Fort Liard direct to Emerson, as direct
13 as we could. The route that was finally studied in
14 considerable detail was essentially direct from the
15 Fort Liard area to the south-west corner of the
16 Air Weapons Range near Cold Lake, and then essentially
17 direct to Emerson.

18 Q I was thinking in terms
19 of the studies you did to move Alaska gas to the
20 southern markets.

21 A That expanded, that
22 system was expanded then to go to Alaska, and it at
23 that time was on the west side of the Mackenzie River,
24 near Fort McPherson and the west side of the delta
25 and then essentially along the prime route into Prudhoe
26 Bay.

27 Q So when you first looked
28 at moving Alaskan gas you took it from the prospective
29 of extending the line from the Mackenzie Valley.
30 Sorry, from Fort Liard.

A Yes, because at that time

Dau, O'Rourke, Williams, Clark,
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1 the supply area also included the Fort Liard area,
2 and I have forgotten the quantity at that time but
3 there was some substantial quantity of gas that was
4 assumed to be available from that area.
5

6 Q So the route which you
7 originally came to for moving solely Arctic gas was
8 preconditioned by the desire to go through the Fort
9 Liard source of supply also.

10 A Yes, that's correct.

11 Q Did you ever look at the
12 line completely concerned with moving Alaska gas to
13 southern markets? On the basis of your experience and
14 knowledge of that area and of pipeline route selection,
15 what would be your opinion as to the possible pipeline
16 route if you were to move solely Alaska gas?

17 A Can I put some assumptions
18 on that? I would like to know what market area, for
19 instance.

20 Q Well, let's perhaps just
21 do it this way. Let's say to move the point of supply
22 being Prudhoe Bay gas, the point of deliverability is
23 where the proposed route joins existing systems in
24 Northern Alberta.

25 A To go to Caroline and
26 split equally, for instance?

27 Q I'm picking that out of
28 a hat.

29 A I'd just like to have
30 the assumptions down, the ground rules. If there
was sufficient quantity of Alaskan gas, and no

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Cross-Exam by Anthony

1 influence on any Canadian gas supplies?

2 Q Correct.

3 A My opinion, the route would
4 be the one that's selected now.

5 Q So that from purely the
6 point of view from the purely American point of view,
7 the prime route is still the best route, for just
8 moving --

9 A That would be my opinion,
10 yes.

11 THE COMMISSIONER: For moving
12 American gas merely?

13 A Yes sir. I want to make
14 sure that you understand what I've said, that there is
15 for instance, 4 1/2 billion cubic feet a day available
16 from Prudhoe Bay and you're going to build a pipeline
17 that goes to Caroline, which then splits and takes 2 1/4
18 billion cubic feet a day through to Kingsgate, 2 1/4
19 billion cubic feet a day through to Monchy. It is my
20 opinion from an engineering point of view and a cost
21 point of view that the prime route would have been
22 selected. Now there is some minor changes, obviously,
23 in the delta area. We've talked about a cross-delta
24 route, for instance. I don't know whether that would
25 be selected over what we now call the prime route.
26 There's some flexibility there, I'm not sure what would
27 happen in that case.

28 THE COMMISSIONER: I think
29 we'll adjourn in a moment, but I have two things to
30 raise. One is, Mr. Goudge, would you speak with

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1 counsel and see if they want to sit this evening.

2 We're holding a community
3 hearing again this evening, but it may be that it won't
4 take us more than 30 minutes to hear the views of local
5 people who want to speak, and we could, if counsel and
6 of course their parties are agreeable, we could sit
7 this evening and again tomorrow evening and Thursday
8 evening. The only problem might be if other more
9 local people want to speak than are anticipated, then
10 you gentlemen would have -- might be a very worthwhile
11 experience of listening to what they think about this
12 project. Some of you were here last night anyway. At
13 any rate, Mr. Goudge, you might discuss that with
14 counsel, and the second thing, Mr. Marshall, I raised
15 with you yesterday -- and I told you I didn't expect you
16 to deal with it this week -- but you might see if Mr.
17 Horte would deal with it when we re-convene in Yellow-
18 knife, which I think will likely be one o'clock Monday
19 afternoon -- and you might consider whether Mr. Horte
20 could advise the Inquiry whether Arctic Gas has given
21 any consideration to using its system, if it were built,
22 for transporting natural gas from Naval Petroleum Reserve
23 No. 4 on the Alaskan-Arctic coast. It's well-known that
24 President Ford has asked Congress to allow that oil
25 and gas there to be developed, and it may well be
26 that Arctic Gas has given consideration to bringing
27 that gas through its system, if it were built, to the
28 United States, and if it were to be done, would it mean
29 looping the Prudhoe Bay to Mackenzie Delta supply leg?
30 That's what's in my mind. Perhaps you might consider

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Hemstock, Banfield, Trusty,
Cross-Exam by Anthony

1 whether Mr. Horte would agree or be in a position to
2 deal with that.

3 We'll adjourn for coffe, then.

4 (PROCEEDINGS ADJOURNED AT 11:30 A.M.)

5 (PROCEEDINGS RESUMED AT 11:50 A.M.)

6 MR. CARTER: Mr. Commissioner,
7 at Fort Good Hope we undertook, when in Whitehorse, to
8 provide the Commission with a larger map of the Fort
9 Good Hope area and Hare Indian River area and the sites that
10 we talked about there for test drilling. I've got a
11 copy of an orthophoto mosaic and will file
12 that as an exhibit.

13 THE COMMISSIONER: All right.

14 (PHOTO MOSAIC OF FORT GOOD HOPE & INDIAN RIVER
15 AREAS MARKED EXHIBIT 156)

16 MR. ANTHONY: Mr. Commissioner,
17 I believe we left off just prior to the break this
18 morning with a consideration of these consultants and
19 advisors of the prime route, the best route for trans-
20 porting the Alaska gas alone to Alberta and subsequent
21 transportation south, and we have Mr. Dau's clear
22 statement of his priority as an engineering consultant.

23 Q I wonder if I might ask
24 the same question of Dr. Clark, as a geotechnical
25 expert involved in questions of terrain stability and
26 terrain sensitivity, what would be your recommendation
27 unfettered by the engineers or unfettered by questions
28 of looping up areas of potential supply? Purely a
29 geotechnical consideration, what would your route look
30 like?

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1
2 WITNESS CLARK: I have to object
3 to your comment of being unfettered by engineers.

4 Q I guess nobody is, but --

5 A I are one. Geotechnical
6 engineering is probably an offshoot of civil engineering
7 so with that background, the only comments that I can
8 make are relative to the coastal route across Alaska
9 and the interior route where we have done sufficient
10 studies to give an opinion, and our opinion is the
11 coastal route is preferable.

12 Q Are you saying that you
13 do not have sufficient information to give a similar
14 opinion for other possible routes from the Prudhoe Bay?

15 A I certainly haven't
16 carried out any in-depth studies from a geotechnical
17 point of view. However, I could generalize in that
18 it is more mountainous terrain, substantially more
19 sloping ground, and one would normally expect you would
20 have more problems to deal with in slope stability and
21 drainage and erosion control; but we have not done
22 test drilling, for instance, or detailed terrain analy-
23 sis of those routes.

24 Q So as a terrain special-
25 ist, if I can do that to get out of the area of the
26 other engineers or geotechnicians, you're unable to
27 in fact give an opinion as to the best route from a
28 geotechnical sense, given the various alternatives that
29 are available.

30 A That's correct.

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Q Dr. Banfield, as an
expert in the biological environment and consultant
to this group, now I hope that you're not an engineer
or we're doomed --

WITNESS BANFIELD: No sir, I
was going to say I can admit to your description and
I have not been unfettered by the influence of engin-
eers, meaning of course that the assignment was to
consider the environmental impact comparatively of
those alternative corridors that have been described
earlier in this hearing.

Q You're talking then of
the prime and of the interior?

A Those two, and the off-
shore, Fairbanks, and Fort Yukon.

Q So you have now
studied the various alternatives that have been --
that you just outlined, from an environmental point
of view.

A Yes

Q I would ask you then from
an environmental point of view, which of those routes
is the best or the prime route?

A From an overall environ-
mental point of view, we consider that the prime route
is the best route, with the minimum environmental
impact. This is not an overall -- this is an overall
view but permits that in fact one discipline, parti-
cularly ornithology, the bird men do not agree that

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Cross-Exam by Anthony

1 the prime route is the preferable route as far as
2 waterfowl and shore birds are concerned. But even
3 including that opposition to the prime route, from the
4 overall point of view of vegetation, fishes, mammals,
5 raptors, and other land birds, the overall view is
6 that that overweighs, overbalances the concern with
7 reference to water fowl and shore birds.

8 THE COMMISSIONER: Excuse me.

9 Q Are you -- one of the
10 principal mammals that would be affected by the coastal
11 route would be the Porcupine River caribou herd?

12 A That is correct, yes.

13 Q Do the mammalogists --
14 is that what you call them?

15 A Yes sir.

16 Q Do they say that from the
17 point of view of the caribou herd they prefer the
18 coastal route to the interior route?

19 A That is correct, sir.

20 THE COMMISSIONER: Thank you.

21 MR. ANTHONY: Do the mammalo-
22 gists also say that they prefer the coastal route to
23 the Fairbanks route?

24 Q:

25 A Yes sir./And they say
26 that the coastal route is the best possible route if
27 you're concerned solely with the preservation of
28 caribou. That's what you're saying, is it not?

29 A No sir. There are other
30 concerns other than caribou.

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Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1 Q Well then would you out-
2 line these other concerns, and let's start off with the
3 caribou?

4 A Well, for instance, the
5 two alternative routes, the Fort Yukon and the Fairbanks
6 route, traverse the ranges of several other caribou
7 herds other than the Porcupine. So one could say that
8 as far as the Porcupine herd is concerned in itself,
9 if you were solely a supporter of Porcupine caribou
10 herds, there might be some advantage of the Fairbanks
11 corridor, although as it passes through the Brooks
12 Range near Bethell and Caribou Mountain, that is in
13 fact on the edge of the winter range of the Porcupine
14 caribou herd. But that route passes through the winter
15 range of the Western Arctic herd, which is much larger
16 than the Porcupine caribou herd, and also skirts the
17 range of the Steeves 40-mile caribou herd. So this
18 gives you an idea of the complexity of the subject.

19 Now to go point by point
20 through about 25 species of mammals, it's fairly long,
21 I'm prepared to do this if that's really your question,
22 sir.

23 Q Well, let's see how we
24 do, but let's understand the question first, and I
25 sincerely hope and expect that you will be back and
26 give evidence when we get into phase 2 and 3, and
27 particularly phase 3 evidence, which deals with the
28 living environment, and we will no doubt at that time
29 go into detail into the effect of various herds, their
30 location, and how the effect can be ameliorated.

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1 THE COMMISSIONER: Before you
2 go on, that route along the North Slope across the
3 Alaskan National Wildlife Refuge and along the North
4 Slope of the Yukon, now there's nothing there, there's
5 no pipeline, no road, so that the Porcupine River
6 caribou herd has not already had its calving grounds
7 or its migratory routes intercepted by a road or a
8 pipeline. The Fairbanks route is a route that you say
9 skirts the winter range of the Porcupine herd, but
10 rather more important than that, interferes with the
11 Western Arctic herd. Now, isn't the difference here
12 that Fairbanks route is a route where you already have
13 an all-weather highway from Prudhoe Bay to Fairbanks
14 and then you have the Alaska Highway from Fairbanks
15 south, and the hot oil pipeline that's presently being
16 built there, so that is there not a difference between
17 adding a gas pipeline, if you were to do that, down the
18 Alaska utility corridor that would constitute a third
19 system of transportation joining the highway and the
20 hot oil pipeline? Isn't that quite a different situation
21 from building your first transportation system across the
22 North Slope and along the Arctic Coast of the Yukon by
23 installing a gas pipeline? Is the comparison that you
24 made altogether appropriate, given those circumstances?

25 A No, I think that is
26 perfectly true, Mr. Commissioner. What you've -- the
27 point you've raised is the one that we've been addressing
28 ourselves to some time in the past, cumulative effect.
29 I should perhaps have chosen a better example, the
30 Fort Yukon route, which passes through complete wilderness

Dau, O'Rourke, Williams, Clark,
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Cross-Exam by Anthony

1 and through the heart of the winter range of the
2 Porcupine caribou herd. Another point, the migration
3 route and the winter range of the Porcupine caribou
4 herd is already affected and in the future will be
5 much affected by the Dempster Highway.

6 Q The Fort Yukon route is
7 one which hasn't -- doesn't seem to have any supporters
8 so far this week in Whitehorse, though one never knows.

9 A Well, I would say, sir,
10 from an environmental point of view a strong case can
11 be made against the Fort Yukon route, and unless there
12 are some people who want more details, I'm quite pre-
13 pared to leave it at that. But a strong case can be
14 made against the Fort Yukon route.

15 THE COMMISSIONER: Well, thank
16 you. I appreciate your elaborating on those matters.

17 MR. ANTHONY: The considerations
18 we've outlined are obviously very important, and we
19 will be, both in what we've learned today and what
20 we will be learning in subsequent days in this hearing
21 will assist us; but I'm asking for a conclusion, and
22 that is on the basis of all these factors that you
23 deem important, and you've outlined them to us, on the
24 basis of impact on caribou, starting there, is it
25 your opinion to your client, Arctic Gas, and to this
26 Inquiry that the prime route has the least detrimental
27 impact on the caribou?

28 A No sir. Our conclusions
29 and our present recommendation to the client are that
30 the impact on caribou of the prime route is tolerable

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1 or acceptable.

2
3 Q Dealing solely with the
4 issue of route selection, because we will get into what
5 is tolerable and acceptable in some detail, and you and
6 I can expect to be discussing this matter again; but
7 dealing with the question of route selection, which is
8 before this Inquiry, what's the best route, the least
9 impact on caribou?

10 A You see, you're singling
11 out one factor which I'm responding to legitimately,
12 and I just want to reserve the fact that there are
13 other factors.

14 THE COMMISSIONER: We understand
15 that. We may look as if we're not altogether --

16 A Fine, thank you. My
17 recommendation would be that the Fairbanks route has
18 the least impact on caribou.

19 MR. ANTHONY: Let us try polar
20 bear.

21 A That one is similarly
22 easy, or even more easy. Fairbanks route has quite
23 an advantage over the prime route for polar bear.

24 Q Dall sheep?

25 A The Fairbanks route is
26 much worse for Dall sheep than the prime route.

27 Q What would be the best
28 route if you wanted to minimize impact on Dall sheep?

29 A The offshore route.

30 (LAUGHTER)

Q The Inquiry obviously

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1 gets in trouble when Commission counsel is giving advice
2 to the witness. A I accepted a certain amount of prompt
3 ing, Mr. Commissioner. Q Can we exclude the offshore
4 even though Commission counsel seems to be supporting
5 that proposition? Comparing then the Fairbanks, the
6 prime, the interior, the Fort Yukon, is there any
7 difference?

8 A Yes, there is considerable
9 difference. The prime route has much less impact on Dall
10 sheep.

11 Q What about aquatic fur-
12 bearers?

13 A Again, the prime route
14 is much preferable for aquatic fur-bearers.

15 Q Compared to the Fairbanks?

16 A Yes. There is very
17 little muskrat and beaver habitat on the prime route.

18 Q And I think you've already
19 said that as far as the birds are concerned, the prime
20 is probably the worst, and what would be the best?

21 A Well, the prime is not
22 the worst. I am sure the Fort Yukon route would be the
23 worst for birds. The prime would probably be second
24 worst. The ornithologists prefer the interior route.

25 Q And how would the Fairbanks
26 rank with them?

27 A It's not as good. There
28 is another basic environmental principle involved here
29 and that is that the further south you go, the greater
30 complexity and the greater diversity of ecosystems you

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1 encounter. So that along the Fairbanks route there are
2 a large number of various habitats and a much larger
3 avifauna which can be impacted, a number of species
4 such as trumpeter swans, for instance, which are not
5 so important on the other routes, are fairly well
6 distributed along. Unfortunately they seem to follow
7 along the Fairbanks route. Also raptors are quite
8 prevalent along that route.

9 Q From the perspective of
10 fish resources?

11 A From the perspective of
12 fish resources, the prime route is the preferable route.

13 Q The best route?

14 A Yes.

15 Q Compared to the Fairbanks
16 too?

17 A Yes, decidedly. The
18 Fairbanks route being much longer, has many more river
19 crossings, many of the rivers involved are major rivers
20 and have fishery. There are several species of salmon,
21 for instance, that appear in the rivers associated
22 with the Fairbanks route that are not a concern of
23 the prime route.

24 Q As you say, we could
25 probably go on for hours on a list, but can I just
26 bring it to a close by reiterating what I understand
27 you have told us, and that is taking all the environ-
28 mental factors, but solely environmental factors, the
29 prime route is still your best environmental route?

30 A Yes sir.

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1
2 Q Well, Mr. Dau, I might
3 go to you for a moment. When you were discussing
4 possible pipeline routes, this is when you were prepar-
5 ing your alternate route study and preparing your
6 route for presentation to the companies, did you discuss
7 acceptable pipeline routes with the Government of
8 Canada or the Government of United States?

9 WITNESS DAU: I did not. I
10 think we have testified previously we had some meetings
11 with the Department of Public Works with respect to
12 the location of the highway, that's the only thing that
13 comes to mind.

14 THE COMMISSIONER: And the
15 minutes of those meetings have been produced.

16 A Yes.

17 MR. ANTHONY: With respect
18 to the United States, you are proposing an altern-
19 ative around the Arctic Wildlife Range in Alaska,
20 I assume that someone suggested to you that might be a
21 more acceptable route, or is this something you proposed
22 on your own without any government direction?

23 A No, we had direction from
24 the client to select a route that bypassed the Wildlife
25 Range, and the selection was our selection of two
26 alternatives, the Canning River and Marsh Fork.

27 Q Did you get any similar
28 direction from your client with respect to a route in
29 Canada?

30 A No sir.

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1 THE COMMISSIONER: When you
2 chose that -- I shouldn't say "you", maybe it was you
3 but -- that route from Prudhoe Bay that goes south-east
4 and around the Alaska Arctic Wildlife Range, I think
5 someone said yesterday that it followed the utility
6 corridor established by the Government of the United
7 States. Was that corridor established when you chose
8 that interior route through Alaska, do you recollect?

9 A My recollection, it was
10 not. I believe it was selected later, sir. In fact I'm
11 pretty sure it was selected later. Mr. Williams may
12 be --

13 WITNESS WILLIAMS: Yes, the
14 question of the interior route came up at the time of
15 the land settlement deal in Alaska, and we were asked
16 to provide our preferred routes from Prudhoe out of
17 Alaska, and this was done in -- it seems to me it was
18 late '71, it was before the merger of the two companies.
19 We did deal with Gas Arctic Systems jointly on this
20 before merger, selecting a route that was acceptable
21 to the two groups. The two groups had looked independent
22 -ly at an interior route, they varied in some
23 locations. We looked at them together and made compro-
24 mises to come up with a joint route which was passed
25 onto the U.S. Government as a common route by the two
26 groups through the interior. We also wanted to give
27 them the location -- and probably did -- give them the
28 location of the prime route across the North Slope, but
29 because this was -- and I'm going from memory, I'm
30 pretty sure this is all on Alaskan State land, that they

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty,
Cross-Exam by Anthony

1 weren't interested, there was no federal land involved
2 in the prime route. So they did not make a separate
3 utility corridor selection through that area prior to
4 the land claims issue where I think the Federal Govern-
5 ment set aside certain lands first, the state certain
6 lands, and then the villages requiring certain lands.

7 THE COMMISSIONER: But the
8 Federal -- that is the U.S. Department of the Interior
9 when it chose the parcels of land it would need for
10 -- not for the main utility corridor they would need
11 from Prudhoe Bay to Valdez, but from Prudhoe Bay to the
12 U.S.-Yukon border, it chose the land along the route
13 that Northwest, whatever it is, and Gas Arctic had
14 themselves chosen. Is that what happened?

15 WITNESS DAU: A That is correct.

16 MR. ANTHONY: Q Extending
17 these considerations then into Canada, do I understand
18 that no similar directions came to you with respect
19 to either the extension of the range in Canada or any
20 particular area that you were to avoid?

21 A I can't recall any, sir.
22 I'm sure there weren't any, no.

23 Q As far as the route in
24 Canada is concerned, you were unfettered as far as any
25 policy was concerned?

26 A In that sense, yes.

27 Q I'd like to just clarify
28 something, on page 9 of your evidence you have a table
29 there indicating a pipeline route length, and could you
30 tell me whether the mileage that's shown there includes

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty,
Cross-Exam by Anthony

1 the Shallow Bay alternative?

2 A No, it does not.

3 Q Could you tell me what the
4 current status of that alternative routing is?

5 A It's my understanding that
6 Arctic Gas has not made a decision as yet as to whether
7 it will be filed as an amendment to the route. They are
8 waiting for the conclusion of some studies that are
9 going on this summer.

10 Q So I don't know active,
11 but in any event it's still under consideration?

12 A Yes, yes.

13 Q Now, from that table, and
14 I don't want to get into detail on it but I think the
15 evidence is clear, and you made it clear in your evi-
16 dence, your verbal evidence yesterday that the mainline
17 in the prime route is some 900 miles shorter than the
18 mainline on the Fairbanks corridor, if I want to draw
19 an example.

20 A The total pipeline
21 mileages is some 920 miles shorter.

22 Q But looking at the
23 heading:

24 "Mainline to Caroline,"
25 in other words the mainline of the pipeline, and
26 dealing again with just those two routes, the situation
27 is reversed in the sense that the mainline on the prime
28 route is 1,303 miles long and the mainline on the
29 Fairbanks route is 1,117 miles.
30

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A That's correct.

Q So while the whole line
of the prime route is longer with respect to the mainline
-- the mainline, sorry, with respect to the total distance
of pipe that's involved, the prime route is
shorter but with respect to the mainline portion,
the prime route in fact is longer than the Fairbanks
alternative.

A That's correct, sir.

Q The difference is approximately 186 miles; and if you adopt the Shallow Bay
alternative, one of the effects you have, of course, is
to move from the mainline dramatically north to the
Mackenzie Delta, is that right?

A Yes, it's about 100 miles,
I think.

Q So if you adopt the
Shallow Bay alternative, your mainline becomes another
100 miles longer and moves into the delta terrain.

THE COMMISSIONER: It goes
across the mouth of the delta.

A Yes, the portion of the
line that carries the 4 1/2 billion cubic feet a day
in the fifth year as filed, then moves into the delta
area for a distance of some -- yes, into Richards
Island, it crosses the Mackenzie River on Richards
Island and I'm not sure of that distance, it's four or
five or six miles, something like that.

Q The effect is that
the looping, the likely area of looping has advanced.

Dau, D'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Anthony

1 The amount of mileage has increased and it has advanced
2 into this new area.

3
4 A When looping is required,
5 there are more miles of line that are required to be
6 looped, yes.

7 Q Are you --

8 A Above the 4 1/2 billion
9 cubic feet a day, yes.

10 Q And have you compared
11 the various routes with respect to cost? Have you com-
12 pared the various routes taking into account the fact
13 of looping?

14 A No, we have not.

15 Q So while we have an
16 indication of what the difference in cost is between
17 the various alternatives for initial construction, when
18 you consider looping you've got no comparative figures.

19 A I'm not sure I understand
20 you. We have done no studies, any cost studies at all
21 on looping, no, we've not done those.

22 Q You would agree -

23 MR. MARSHALL: Perhaps, just
24 to make sure it's clear and Mr. Anthony is not misled,
25 the application is not for a line that would be looped.
26 Mr. Horte gave evidence that -- I think he set out the
27 most optimistic case in terms of one who would want to
28 loop a facility, and in the event that additional re-
29 serves were found that would justify looping, there
30 would be separate applications made to the regulatory

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1 authorities, and these witnesses really haven't been
2 instructed to examine this possibility at all. I just
3 don't want Mr. Anthony to be misled as to the scope
4 of the assignment that they have been given, or indeed
5 the scope of the application.

6 MR. ANTHONY: Perhaps the
7 question can be put quite ^{a little} easier then, you've given us
8 comparative cost figures and I suggest to you that if
9 looping is to take place, given the fact that the
10 mainline is longer and that you have to construct it
11 in 1985 dollars instead of 1975 dollars, that in fact
12 if you took looping into consideration the difference
13 may be dramatically reduced between the two routes.

14 A No sir, I can't agree
15 with that.

16 Q But you agree with me that
17 it will cost more to loop the prime route than it would
18 cost to loop the Fairbanks, assuming you have to pay
19 for that extra hundred and some odd, or 300 and some-odd
20 miles if you adopted the Shallow Bay, because you'd
21 have to pay to do extra miles of looping. I don't want
22 the figure, I just want agreement.

23 A I'm having trouble with
24 your additional 300 miles in Shallow Bay. I don't agree
25 with it.

26 Q Your mainline, the looped
27 area, the likely area of looping is approximately 200
28 miles, 186 miles longer in the prime than it is in the
29 Fairbanks. So if you loop, you are in fact going to
30 have to loop more miles on the prime route than you do

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1 on the Fairbanks.

2 A Yes, that is correct.

3 Q And I'm suggesting to you
4 that that's going to therefore cost you more money to
5 loop the prime than it would to loop the Fairbanks.

6 A No question about that.

7 Q So the difference, the
8 cost comparison that you've given us on page 13 between
9 the two routes, if you took in looping, would be reduced.

10 A It will be reduced.

11 Q I'd like to just take a
12 quick look then at some of the geotechnical considerations
13 now that we've all become experts as a result of the
14 panel in Whitehorse. You've provided -- I guess this
15 will be directed to Dr. Clark, on page 10 -- a comparison
16 of terrain conditions and in there you've listed perma-
17 frost terrain and mountainous terrain, and I think we
18 can probably all agree that these are just two of the
19 many factors that go into understanding the terrain
20 conditions of a particular route.

21 WITNESS CLARK: Correct.

22 Q And as a matter of fact,
23 even the question of permafrost as it sits there, a
24 question of miles comparison, isn't the whole story,
25 is it, and in fact you have to consider not only the
26 miles of permafrost but the nature of the permafrost
27 that you're going to be encountering.

28 A That's right.

29 Q And that in fact ice-
30 rich permafrost in fine silt soil, if I recall the

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1 evidence correctly, is much more potentially difficult
2 to construct in than in non-ice-rich permafrost and
3 very coarse material.
4

5 A Again depending upon the
6 latitude.

7 Q The issue really then is
8 terrain sensitivity and that you have to consider alter-
9 nate routes, and the terrain sensitivity of the
10 various alternates.

11 A Terrain sensitivity is
12 a consideration, yes.

13 Q Have you had an opportunity,
14 sir, to examine or review the Department of the Interior
15 Draft Environmental Impact Statement prepared by the
16 United States Department of the Interior and dated
17 June '75?

18 A There are 17 volumes of
19 that, sir, as I recall. Which volume?

20 Q I'll deal now with the
21 American Government has, as part of their study, put
22 three volumes which is a comparative of alternate routes
23 within Canada. Have you examined those volumes?

24 A I've seen them but I
25 haven't examined them.

26 Q Well then, I won't go
27 into questions of your views of their assessment, we can
28 leave that to some later stage; but I would like to ask
29 you to comment on the techniques that they adopted
30 in examining terrain conditions of alternatives, and

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1 I'll just read a short section because I think that's
2 all that's really required to give you an idea.

3 A Well, sir, can you tell
4 me what is the part number and volume number that
5 you're looking at?

6 Q Well, I was just about to
7 do that. It's the Part III, Canada, Volume 2 of 3 of
8 the Draft Environmental Impact Statement dated June,
9 1975, and I'll just read a description of the techniques
10 they employ, which is found at page 841. They adopt
11 what's called the S.P.G. index, and this is what they have
12 to say, and I'd just like to get your comments on the
13 validity of this technique:

14 "The index, here termed the S.P.G. index, has been
15 devised to combine the evaluations of three
16 elements -- slope, permafrost, and geology --
17 that have the most important bearing on engineering
18 geological problems anticipated along the route.
19 The index is the sum of the three components,"
20 and they assign values and so on; and they state:

21 "The index can be interpreted as a measure of
22 potential geologic impact, and thus can be
23 used to present in a simplified and generalized
24 way the potential impacts on the environment and
25 on the pipeline that are related to geologic
26 materials, including engineering soils and
27 conditions along the route on a mile by mile
28 basis."

29 Would you accept that technique as suggested there as
30 a proper and valid technique of terrain sensitivity?

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A No sir.

Q So --

A I said I would not accept that. It doesn't include, for instance, surface cover or vegetation, which has to be a very important feature, as you've described it.

Q You would agree, though, that comparisons within that limited study would assist in a terrain evaluation of alternatives?

A They are three components, but I have seen terrain sensitivity, a number of terrain sensitivity ratings and we have listed with the Commission one of the reports prepared by our group that provided a description and gave an assessment of terrain sensitivity. It can be very misleading, and that's why I would not want to accept it. For instance, it may rate a terrain as not being particularly sensitive, but because of the vegetation or even the aspect of the slope or the history of the area could be sensitive.

Q You haven't done, as I understand it, a corresponding terrain sensitivity analysis of the alternate routes beyond the prime and interior?

A We have only done terrain analysis of the prime and interior routes.

Q Now dealing with the question of permafrost that you've outlined there, would you agree that the prime area of concern is this area of ice-rich permafrost?

A Yes, and the degree

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1 of concern depends on where the ice-rich permafrost
2 occurs. For instance, I would be very concerned to
3 find massive ice in Fort Simpson area, much more con-
4 cerned than to find it on the Arctic coast.

5 Q If I can just then look
6 closely at the Fairbanks corridor for a moment, my
7 understanding and my advice is that there are no
8 areas of ice-rich permafrost in the Canadian portion
9 of the Alaska corridor. Is that your understanding of
10 the information you have?

11 A I don't know that.

12 Q I look then at the question
13 of construction and a couple of quotes that were found
14 in your application on page 10, which talks about
15 mountainous terrain and has -- I'm referring to the
16 last line of the table -- and at page 14 you're talking
17 about difficult mountain construction. Could I ask
18 you what definition you used of "mountainous terrain"
19 to come to the conclusion you found on that table?
20 Why is it 850 miles in the Fairbanks and not more or
21 less?

22 A I didn't personally
23 compile this table, but I would think that that 850
24 miles would represent the length of the route through
25 mountains.

26 Q Well, I would anticipate
27 that's what it means, too, but you can't enlighten me
28 as to, assuming that there's variations in terrain.

29 A Yes, I didn't really mean
30 to be facetious, what I meant was it would also include

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1 also say a broad flood plain, I'm sure, if there
2 happened to be mountains on both sides. I think that
3 is what is meant.

4 Q So that when you're
5 talking there of mountainous terrain, and I gave you
6 an example of a trench through the mountains such as
7 the Shakwak Trench or any other, this would be included
8 in your mountainous terrain as defined here, as far as
9 you know.

10 A That's my understanding,
11 yes.

12 Q And given the Fairbanks
13 corridor, can you indicate generally how much of those
14 mountainous terrains are in Alaska and the amount that's
15 in the Canadian portion?

16 A I think that could be
17 picked off the map, but I don't have those numbers in
18 my head.

19 Q Would you agree that most
20 of the mountainous terrain on the Fairbanks corridor
21 is in the State of Alaska?

22 A Yes.

23 Q And would you agree also
24 that construction in a mountainous terrain in the State
25 of Alaska would probably be construction in the area
26 that the Alyeska line is now operating?

27 A Down to Big Delta, yes.

28 THE COMMISSIONER: Sorry, down
29 to Big Delta?

30 A Yes.

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Q Where is Big Delta?

MR. ANTHONY: Where the line
leaves the Alyeska Pipeline.

THE COMMISSIONER: The Fairbanks
line.

A 100 miles south of Fair-
banks.

MR. ANTHONY: So at least,
dealing again with the Fairbanks corridor, at least
the mountainous construction on that corridor is in
areas that are being researched and engineering informa-
tion is being obtained and in fact you will have some
engineering experience.

A Yes sir.

Q And I think that is being
of assistance in dealing with problems of construction
in mountainous terrain.

A The information would be?
The information would be of assistance, but the exist-
ence of another line there might be the opposite.

Q You referred to the
question of mountainous terrain as it relates to the
question of access also, and again looking at the Fair-
banks corridor, as I understand the situation the
Fairbanks line would follow the Alyeska line through
the Brooks Range and there will be an all-weather road
abng that general corridor as well as construction
experience. Does that seem to pose any insurmountable
access problems on that portion of the route?

A There is an all-weather

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1 road there, yes.

2 Q And that certainly would
3 help overcome the problems of access, would it not?

4 A I'm not sure if you're
5 stating the obvious or what.

6 Q Well, you've stated that
7 one of the --

8 A What I'm getting to is
9 the fact that there is a road and a pipeline there may
10 mean that the gas line has to be well removed, if all
11 the good terrain, if you like, has been opted for.

12 Q But dealing generally
13 with the question of access, surely an all-weather
14 road is of assistance in getting access in that terrain.

15 A Yes.

16 Q And as far as the portion
17 from Big Delta to Whitehorse is concerned, that follows
18 the Alcan Highway, so that doesn't seem to offer any
19 particular access problems.

20 A That's right.

21 Q And as far as the lateral
22 into the Mackenzie Delta is concerned, you'd be follow-
23 ing the Dempster Highway, so that doesn't seem to pose
24 any particular access problems.

25 A Correct.

26 Q And if you compare that
27 with the prime route, you see of course there are no
28 roads existing at this time in that area.

29 A Correct, yes.

30 Q And you don't -- won't be

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1 building any all-weather roads in that area.

2 A That's correct.

3 Q It seems to me, just look-
4 ing at it generally, that you've got all the access you
5 need along the Fairbanks corridor as it presently exists.

6 A You're talking about
7 logistics here now.

8 Q Well, let's deal with
9 then perhaps two aspects, the logistics, which is the
10 getting of supplies and people to the area; and then
11 we can discuss it in other terms, if you wish.

12 A I really can't speak to
13 logistics.

14 Q Well, you have in the
15 statement here that the mountainous terrain of the
16 Fairbanks causes problems of access, and I'm wondering
17 who made that statement on behalf of the panel, and
18 what they can comment? It seems that when the
19 doctors get in doubt, it's usually Les Williams
20 that gets --

21 WITNESS HEMSTOCK: My under-
22 standing would be that there would be concern about
23 the access required for maintenance. There would
24 be required on any pipeline a fairly regular fly-over
25 to check the right-of-way, and this would require
26 some additional, at least, air strips along the pipeline
27 in order to provide that facility. I'm not aware
28 whether we have any comments on, or studied whether
29 we would need air strips at every compressor station
30 in the event of a highway being parallel, but certainly

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1 we would need fairly quick access to each compressor
2 station, probably by air.

3 Q I don't want to get bogged
4 down with details, I just wanted to find out why
5 from
6 the statement that/the logistics sense, why there was
7 a problem of access in mountainous terrain using the
8 Fairbanks corridor as an example. If no one can
9 comment on it, we'll just assume it got in there
10 somehow.

11 Now, doctor or Mr. Hemstock,
12 I'll deal with a few quick issues with you. You were
13 the environmental consultant in 1973 to Arctic Gas.
14 Did you recommend the route as filed by Arctic Gas
15 on environmental terms?

16 A When I joined the project
17 the route in a general sense had been selected along
18 the prime corridor. We have made recommendations
19 with regard to several minor changes along the route
20 itself.

21 Q Could you approve or
22 recommend the initial routing alignment which crossed
23 the Liard River at possibly Fort Simpson?

24 A Yes, we looked at that
25 route and we could find very little difference between
26 that and the -- what is now called, I believe, the East
27 Simpson route in terms of environmental concerns. The
28 fisheries people pointed out that the two river cross-
29 ings which were involved were not to their best liking,
30 and the other concerns were just about neutral. So that
31 under the conditions at the time, we were not

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1 particularly concerned with the original routing that
2 was chosen.

3
4 Q What about the route over
5 the Ebbutt Hills?

6 A Again, we don't see that
7 there is a great deal of difficulty there. We are aware
8 of the proposed I.B.P. site. We're also aware that in
9 some cases I.B.P. sites have been extended in order
10 to cross the pipeline, and let the biologists who are
11 interested monitor the effect of a pipeline. So that
12 from an overall standpoint we don't see too much
13 difference between that route and a route which would
14 bypass those hills.

15 Q You would recommend that
16 route on an environmental ground as compared to one
17 that would bypass it?

18 A Yes, we think there is
19 very little difference.

20 Q What about the cross-
21 delta alternative? Did you recommend the original
22 routing there?

23 A From a personal standpoint
24 and from what studies we have done to date, I would
25 recommend the cross-delta route; but we have additional
26 studies under way, we have a concern expressed from
27 some of the consultants about the choice of that route,
28 and we want to get additional information. We are
29 presently doing that and we will have final reports
30 prepared by this fall.

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Q From your point of view
at this time, you, on environmental grounds, would re-
commend the cross-delta route?

A I would personally, yes.

Q What about you, Dr.
Banfield? Would you recommend the cross-delta alterna-
tive on environmental grounds?

WITNESS BANFIELD: No, I would
not, sir, at this point.

Q What are your concerns?

A Primarily my concerns are
involved with the waterfowl nesting areas in the
Mackenzie Delta.

Q You will be conveying
these concerns to Mr. Hemstock, I hope?

A Yes, I will be.
I think he probably took note at this point.

Q If he didn't he can read
the transcript. Have you discussed the cross-delta
alternative with any members of the Department of the
Environment or any other members of the Government of
Canada or Territorial Government with respect to any
views they might have on that alternative?

WITNESS HEMSTOCK: A I have not discussed
it with them.

Q Has anybody within your
consultants or within Arctic Gas who is responsible
for advising on this issue?

A I am not aware of any
discussions. There may well have been discussions

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1 between individual biologists in the field, but I am
2 not aware of any.

3 THE COMMISSIONER: Why do you
4 always go into that, Mr. Anthony? What does that matter?
5 It would be perfectly reasonable for them if they know
6 specialists in the Government of Canada, especially the
7 Department of the Environment, on an informal basis
8 to discuss it with them; but the government has its
9 own -- it has established this Inquiry to make
10 recommendations with respect to a right-of-way. Then
11 it has the National Energy Board. Where -- these
12 questions never seem to elicit an answer that advances
13 the position, but what's it got to do with us anyway?

14 MR. ANTHONY: Well, Mr. Commis-
15 sioner, that's precisely I guess why I keep trying to
16 get at the issue, and see if it can advance us. I
17 think the point of significance here is that whether
18 questions of alternate routing and decisions as to
19 appropriate routings are foreclosed on the basis of
20 any pre-existing or communicative policy. Now while
21 the Government of Canada will certainly be very anxious
22 to hear what's being said here and what recommendations
23 we have, I am just anxious to find out whether at any
24 level at any time as these consultants go to do their
25 studies, any options are foreclosed to them as a result
26 of a matter of policy or directive. Now if I would
27 suggest if a particular route was foreclosed and was
28 never studied, as a matter of direction from any govern-
29 ment, that that would be a matter of substance that
30 would be important to us to understand when we consider

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1 the sort of evaluation that they get.

2 THE COMMISSIONER: You mean it
3 is a matter of policy the Fairbanks route was shut off
4 from consideration?

5 MR. ANTHONY: Yes.

6 THE COMMISSIONER: Yes.

7 MR. ANTHONY: I have one other
8 question that's been outlined that I'd like to get your
9 comment on, and that is on page 17 in the first paragraph
10 there you state that in discussion of the offshore
11 route, you state that:

12 "Arctic Gas cannot conclude that a pipeline
13 once installed in such a harsh environment
14 could be repaired promptly if a pipeline
15 interruption occurred during freezeup or
16 ice breakup periods."

17 And you say:

18 "Therefore there is a great risk in the off-
19 shore route,"

20 and you prefer the prime route that's on land. Now I
21 guess the point you're making there obviously is that
22 with the offshore route at certain times of the year
23 it's inaccessible to conduct repairs. Now could you
24 tell me whether the same consideration applies with
25 respect to the Shallow Bay crossing?

26 WITNESS DAU: No, it does not,
27 sir. It's my understanding in Shallow Bay that you don't
28 have the same amount of ice movement during breakup and
29 freezeup, and in addition to that, the crossing of
30 Shallow Bay is planned as a dual crossing to take care

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1 of that eventuality.
2

3 Q In dealing with the prime
4 route, if there is a great risk involved in going off-
5 shore because you don't have regular access, are you
6 assuming that you have prompt and regular access on the
7 prime route?

8 A Yes, much better than
9 offshore, certainly.

10 Q Are there any times of the
11 year that in your evaluation of the ability to make
12 prompt repairs you've assumed that you cannot make
13 repairs on the prime route?

14 A No sir.

15 Q So in your evaluation of
16 the prime route in this regard you're assuming that
17 you can go in there any time and make a repair.

18 A A major emergency, yes.

19 Q You made the argument
20 in and around page 32 that you might as well put a
21 line across the North Slope because you may want to at
22 some stage put a supply lateral into that area in any
23 event. Now, would you agree with me, though, that
24 there is a great deal of difference between putting a
25 mainline through an area and putting a supply lateral
26 in that if you have a mainline, the pressure may be
27 great, perhaps even impossible to resist, to go in there
28 and make a repair no matter what the environmental or
29 socio-economic situation is?

30 A The reference is on
page what, sir?

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Q Page 32, the first para-
graph where you say:

"In fact, there is a substantial possibility
that ^{if} the Fairbanks corridor were utilized,
there would later be need to construct some
or all the northern portion of the prime
route to connect additional gas pipelines."

I'm suggesting to you that dealing with this question
of ability to move promptly, that there is a world of
difference between putting a mainline and a supply line.

A Depends on the size of
the supply line, the amount of gas that is connected to
that supply line. I think in this reference here it's
not meant to mean that we're connecting up one well or
something like that. It's obviously talking about a
substantial supply line.

Q But surely you would
agree, would you not, that if you had a supply line
with only a portion of your total throughput as compared
to a mainline where your total throughput is reliant
on that line, that you're going to move to repair the
mainline with much greater speed and under much greater
pressure to get it done, and to get it done quickly.

A Yes sir, it's a matter of
degree.

Q So that if the President
of the United States phones the Prime Minister of
Canada and says, "Lights are going out in the United
States," and the Prime Minister responds, "Well, the

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1 caribou are calving, we can't let anybody go in to
2 repair," the chances are you're going to go right in
3 there and do the repair, aren't they? There's really
4 no question, is there?

5 MR. MARSHALL: I take it the
6 witness need not answer.

7 THE COMMISSIONER: That is what
8 is known as a hypothetical question.

9 MR. ANTHONY: I was hoping, I
10 guess, to get a hypothetical answer. I'll leave that.
11 Thank you, Mr. Commissioner, that's all I have.

12 MR. GOUDGE: Well, sir, if
13 you propose to break for lunch now, Mr. Templeton of
14 the Environmental Protection Board would be next in
15 the ordinary course.

16 THE COMMISSIONER: All right,
17 we'll break for lunch then. What is the feeling of
18 counsel about sitting tonight?

19 MR. GOUDGE: Well, sir, I
20 canvassed them at the break and there is no objection
21 whatsoever to carrying on tonight, provided that is,
22 that any members of the community obviously have a
23 chance to say their piece beforehand, counsel I think
24 would be prepared to come at 8 o'clock and await
25 your wish as far as commencing the formal hearing is
26 concerned.

27 THE COMMISSIONER: All right,
28 well then we'll adjourn now until 2:30 and then we'll
29 sit until five, and then we'll come back at eight and
30 we can stay in readiness at eight to simply carry on

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1 with the formal hearings when members of the community
2 have finished saying what they have to say at that time.

3 (PROCEEDINGS ADJOURNED AT 12:55 P.M.)

4 (PROCEEDINGS RESUMED AT 2:40 P.M.)

5 MR. GIBBS: Mr. Commissioner,
6 yesterday I was discussing with this panel or trying
7 to obtain from this panel information on cost
8 by segments, and it arose out of their statement on
9 page 17 of their prepared evidence that in order to
10 allow comparison of projected costs of the proposed
11 pipeline along the prime route with costs associated
12 with alternative routes, preliminary cost estimates
13 had been developed on the basis of a common costing,
14 and financial criteria and assumptions.

15 Since that exchange my friend,
16 Mr. Marshall, produced some capital cost tables for
17 me this morning. We have gone through them and just
18 cannot develop from those the numbers that we need to
19 make a comparison, partly because the numbers presented
20 to me this morning don't even agree with what is in
21 Sections 10 and 11 of the filing. So that my request,
22 sir, is that Arctic Gas produce for the prime route
23 in the same division of segments as direct costs are
24 listed in Section 10 of their filing the indirect
25 costs and the interest during construction figures
26 for each segment; and as well, sir, that they produce
27 similar figures for the Fairbanks route, and that the
28 segments there be the Prudhoe Bay supply line to White-
29 horse, the Mackenzie Delta supply line to Whitehorse,
30 the mainline from Whitehorse to Caroline, the line from

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1 Caroline to Empress, the segment from Empress to Monchy,
2 the segment from Caroline to Kingsgate, and if those
3 similar breakdowns of indirect costs and interest dur-
4 ing construction for those segments can be produced, we
5 can then make the sensible comparison which we're told
6 on page 17 can be made from what's in that document.

7
8 MR. MARSHALL: Mr. Commissioner,
9 we had indicated the other day that costing information
10 was developed really in two different formats, one an
11 engineering format developed by N.E.S. and the second
12 is a format used in the financial exhibits filed with
13 the N.E.B. that's based on a computer program called
14 NECTAR and I thought we'd explained to Mr. Gibbs that
15 the material that we are giving him today is on an
16 engineering format and hence would not necessarily
17 correspond in all respects with that in the financial
18 exhibits with the N.E.B. The material that Mr. Gibbs
19 has requested is not available either on the engineering
20 format developed by N.E.S., nor is it available in the
21 computer program that I referred to. It's not really
22 necessary to have the information that my learned friend
23 is requesting for purposes of the Arctic Gas proposal,
24 as the need in order to examine the relative costs of
25 the various alternative systems is satisfied if one has
26 to cross the complete alternatives rather than on a
27 segment by segment basis, such as Mr. Gibbs is request-
28 ing. I am instructed that a very considerable amount
29 of work would be required in order to develop the type
30 of information that Mr. Gibbs is after, and as I say,
it's not available at this point in time and Arctic Gas

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1 really would not have any need to develop that type of
2 information in support of the application for the system
3 that it's proposing to build, or in consideration of
4 the alternatives that have been presented and discussed
5 by this panel. Accordingly, then, we're not prepared
6 to accede to Mr. Gibbs' request, and it's Arctic Gas'
7 position that this relates to a matter of tariffs and
8 costs and so on, and Mr. Gibbs may wish to pursue this
9 matter with the National Energy Board and that body may
10 decide that that type of information would be helpful
11 to it.

12
13 MR. GIBBS: Well, sir, could I
14 address myself again to the remarks by Mr. Marshall?
15 You recall, sir, that when Mr. Horte was on the witness
16 stand in Yellowknife he spoke of costs and unit costs
17 and I was then able to cross-examine him to a point of
18 obtaining from him an admission that the method of
19 calculation by Arctic Gas of unit costs meant that
20 Canadians would be paying 25 to \$30 million a year more
21 in cost of service than they would if costs were allo-
22 cated on this segmented basis. You will recall, sir,
23 that I tried to persuade him that it was \$95 million
24 a year, and as far as he would go was 25 and 30 million
25 a year.

26 Now, sir, that indicates that
27 there are different methods besides that which Arctic
28 Gas has chosen, and you can make comparisons on different
29 bases. We've taken the numbers that were given to us
30 this morning and the numbers in the cost of facilities

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1 book and if you take the overall capital costs, insofar
2 as one can determine them from Section 10, you find
3 that indirect costs on the overall system of the prime
4 route represent 35% of total costs. But if I take
5 the numbers that were given to me this morning and
6 try and match them with Section 10, I find that the
7 indirect costs on, for example, the Canadian section of
8 the Prudhoe Bay lateral might be as high as 70%. Now
9 I'm sure there's something wrong there, that the num-
10 bers are not comparable or something is different.
11 But you know, sir, from the exchange Mr. Horte and I
12 had that you can allot these costs in segments.

13 Now, Canadian Arctic Gas, for
14 whatever reason, is allotting interest during construc-
15 tion and indirect costs unfairly on the Canadian side,
16 then that means that Canadian Arctic Gas costs, their
17 total capital costs are up above what they ought to
18 be, and Alaskan Arctic Gas are lower than what they
19 ought to be. So that certainly insofar as the Canadian
20 consumer is concerned, this breakdown is needed to see
21 whether the Fairbanks corridor is or is not less favor-
22 able than the prime route, and that certainly is with
23 the American consumer as well.

24 I didn't introduce this subject,
25 sir. My friend through this panel chose to bring
26 in ~~the~~ capital cost considerations, and it was apparen-
27 tly one of the reasons why the Fairbanks corridor was
28 rejected in the first place, was because of cost, and
29 it seems to me with respect that we are entitled,
30 whether it amounts to work or not, to have from Arctic

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1 Gas, who made up the costs, the breakdown so this
2 comparison can be made.

3 I don't think, sir, that we
4 should be expected to eat whatever dish Arctic Gas
5 serves up without the right to poke around at the crust
6 and see what's underneath. That's really what we want
7 to do with these figures.

8 THE COMMISSIONER: I recollect,
9 Mr. Gibbs, that I allowed you to pursue that question
10 of Mr. Horte on the basis that it related to how
11 consumers north of the 60th Parallel would be treated
12 by the one method and by the other method. That
13 related to regional economic impact. I suppose you're
14 saying that if the Fairbanks route were adopted and
15 gas were brought -- well, maybe you're not saying that
16 -- past Whitehorse, for example, the people here would
17 conceivably be able to purchase gas at rates less than
18 they pay for comparable fuel now.

19 What is this -- is that the
20 only connection, if it is a connection, to the work of
21 this Inquiry?

22 MR. GIBBS: No sir, the real
23 basic connection to the work of this Inquiry is the
24 Fairbanks route is advanced as an alternative, and
25 rejected on a number of grounds, one of which is cost,
26 and I am saying to the Inquiry that the figures we
27 have now do not permit of comparing costs on the same
28 basis, on a segmented basis, or really on any basis.

29 THE COMMISSIONER: I understand
30 your objection to the way in which the capital cost has

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1 been calculated, and the unwillingness of Arctic Gas
2 to divide it as between American and Canadian segments;
3 but this question of routes is one that is dealt with
4 in the pipeline guidelines and in my preliminary rulings.
5 Do we have copies of that? Well, I said then, having
6 had an opportunity to reflect upon it, this was on July
7 12th last year, that:

8 "The pipeline guidelines specifically require
9 a comparison of the proposed pipeline route
10 with alternative routes."

11 That's why we're here, and the guidelines themselves
12 say -- the guidelines actually say that in relation to an
13 oil pipeline, both companies have to file material
14 comparing the proposed route of the gas pipeline with
15 alternative routes in terms of environmental and social
16 factors, as well as technical and cost considerations.

17 That's at pages 10 and 11.

18 Do you have anything to add to this, Mr. Goudge?

19 MR. GOUDGE: Mr. Commissioner,
20 my views on it so far as they are relevant, perhaps not
21 being a party between combatants in this case, is that
22 Arctic Gas has said simply that the evidence isn't at
23 present available. I don't know that they go so far as
24 to --

25 THE COMMISSIONER: You mean
26 'Mr. Marshall said he thought it was not relevant to
27 the Inquiry.

28 MR GOUDGE: He says more than
29 that it's not available; he as well says it would be
30 difficult to produce and also it is not relevant. I

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1 may say, sir, that on brief consideration my view would
2 be that he's probably right. We have cost comparisons
3 available on 1973 dollars for total routes. That purpor-
4 ts to permit Arctic Gas to say that on comparing the
5 various routes, cost is used in the following way,
6 1973 dollars over the entire project, that is the way
7 they chose to use the criterion of cost. That's the
8 comparison they made.

9 Mr. Gibbs, I think, is seeking
10 a different kind of cost comparison between the routes.
11 That's not what the applicant, the first applicant at
12 least is purporting to use cost for. If the first
13 applicant hasn't got the cost figures that Mr. Gibbs
14 wants, it seems to me very difficult that they be
15 generated out of whole cloth, if you will. It seems to
16 me that the cost comparison of the routes has been
17 brought into the realm of relevance by Arctic Gas, but
18 in only the total route sense, and that the figures
19 they've supplied are satisfactory for that task.

20 I suppose in addition I would
21 find it difficult to see where the line might be drawn
22 if we get into a cost comparison on the basis that each
23 individual participant might choose to put forward.
24 So my own view, sir, insofar as I can respectfully sub-
25 mit it, is that it probably in my judgment would not be
26 relevant, and I would support the position of the
27 applicant, Arctic Gas, in declining to produce it.

28 THE COMMISSIONER: Do you want
29 to add anything, Mr. Marshall?

30 MR. MARSHALL: No sir, I think

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1 that Mr. Goudge has covered those points that I might
2 have added.

3 THE COMMISSIONER: Mr. Veale?

4 MR. VEALE: Mr. Commissioner,
5 speaking not as an applicant but as a participant, I
6 would submit that this issue of cost and the costing of
7 the Fairbanks corridor seems to be the prime position
8 for rejection by the applicant, Arctic Gas, and there-
9 fore any figures that could enhance our knowledge about
10 the ability to finance the Fairbanks corridor are
11 extremely relevant to the Inquiry.

12 THE COMMISSIONER: This is
13 your motion, Mr. Gibbs. Do you want the last word?

14 MR. GIBBS: Well, yes sir.

15 MR. BAYLY: If Mr.
16 Gibbs is going to have the last word, can I have the
17 second-last word?

18 THE COMMISSIONER: Yes, by all
19 means.

20 MR. BAYLY: It appears
21 to me, Mr. Commissioner, that we have already gone
22 into some of the questions today that Mr. Gibbs is
23 asking through Mr. Anthony's evidence, and that is
24 the question of whether it is cheaper to loop one
25 route than another; and following that, on Mr. Veale's
26 argument it may well be that two routes are equal except
27 for cost, there appears to be some things in the realm
28 of cost of routes that we don't know and can't weigh,
29 at this point. Now Arctic Gas may not at this point
30 be able to supply those things to us, but in terms of

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1 weighing the various kind of impacts, not only on the
2 participants but also on the applicants, as the cost
3 falls on the applicant and its customers, these are
4 things which really are relevant to this discussion if
5 alternate routes are to be seriously considered.

6 THE COMMISSIONER: Mr. Bell?

7 MR. BELL: I don't think I have
8 anything to add to what has already been said, sir.

9 MR. MARSHALL: If I may res-
10 pond to a couple of the points that my learned friends
11 have made before my learned friend, Mr. Gibbs, has the
12 final word.

13 We have indeed provided cost
14 information that allows for a comparison of the various
15 alternative routes, and what I think my friend is aiming
16 at is something that would allow him to construct cost
17 estimates for an alternative that is not one being put
18 forward by Arctic Gas, and I think that's really what
19 it gets down to.

20 MR. GIBBS: Well, Mr. Commission-
21 er, the question of whether or not Arctic Gas has
22 developed these figures at this point, in my estimation,
23 is beside the point. They have brought this --

24 THE COMMISSIONER: I agree,
25 I agree; relevance is all we're concerned with.

26 MR. GIBBS: Yes sir, and I
27 think I've said all I can say about relevance. I don't
28 think that you can accept, or that we should be expected
29 to accept everything that Arctic Gas chooses to say at
30 face value. We're entitled -- that's one of the

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1 purposes of this Inquiry -- to probe behind it.

2 Now this kind of cost breakdown
3 is something that's solely within their knowledge. If
4 my friend says to me, "Take that 35% overall figure and
5 apply it against the direct costs in each segment,"
6 I'm content to do that. If he says that's the way I
7 ought to do it, but if it doesn't work out that way
8 on each segment then it does have a serious difference
9 in making these cost comparisons.

10 THE COMMISSIONER: I think I
11 will have to think about this and I will let you know tomorrow
12 morning whether I'm willing to accede to the motion that
13 Arctic Gas be required to produce these figures.

14 MR. MARSHALL: Mr. Commissioner,
15 before Mr. Veale begins I wonder if Dr. Banfield might
16 be allowed to clarify an answer. He said to me over
17 the noon hour that he felt he was perhaps seduced by
18 the eloquence of counsel and was concentrating on a
19 particular part of the question and failing to fully
20 really give a complete and ^{fully} responsive answer, and it
21 pertains to this consideration of alternative corridors.

22
23 DIRECT EXAMINATION BY MR. MARSHALL (CONTINUED):

24 Q With your leave, sir, I'd
25 like to have Dr. Banfield clarify the record.

26 WITNESS BANFIELD: Mr. Commis-
27 sioner, I apologize for asking for a moment to clarify
28 one of my responses to Mr. Anthony's question.

29 THE COMMISSIONER: Quite all
30 right.

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1
2 A Yesterday I was so beguiled
3 by Mr. Gibbs' eloquence in describing his alternative
4 corridors that I temporarily lost sight of the Mackenzie
5 Valley portion of the client's prime route on two
6 occasions when I was being questioned rather rapidly
7 about comparisons between corridors, and unfortunately
8 sir, I concentrated on the Prudhoe Bay and the Mackenzie
9 Delta laterals as they pass through Alaska and the
10 Yukon. This was my area of concentration. So there's
11 two brief points I'd like to clarify.

12 I'd like to emphasize the
13 environmentalists' concern of the impact of the Macken-
14 zie Delta lateral that would be necessary if the
15 Fort Yukon or Fairbanks corridors were under considera-
16 tion.

17 THE COMMISSIONER: You mean
18 that supply line bringing gas from the delta over the
19 Dempster, to join either the Yukon or Fairbanks lines?

20 A Right, sir. I think in
21 response to you I neglected to emphasize that that
22 supply line would cross right through the centre of
23 the winter range of the Porcupine caribou herd and
24 there are also considerable populations of Dall sheep
25 in that area.

26 The second point was a quick
27 response I made about populations of aquatic fur-bear-
28 ers on the prime route, and it was at this point that
29 I completely neglected to consider the major portion
30 of the prime route down the Mackenzie Valley, and my
31 quick assessment was based on considering the two

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1 laterals, the Prudhoe Bay lateral across the coast
2 was what I was referring to, and also the complex --
3 the whole complex of the Fairbanks corridor, and I
4 neglected to consider in true equal proportion the
5 full Mackenzie Valley portion of the prime route, which
6 of course contains considerable populations of aquatic
7 fur-bearers. Thank you, sir.

8 THE COMMISSIONER: Thank you
9 very much. Now, Mr. Veale?

10
11 CROSS-EXAMINATION BY MR. VEALE:

12 Q Well, Mr. Banfield, I
13 will give you a break, in the opening portion this
14 afternoon. I have some questions for Mr. O'Rourke
15 relating to supply routes as they affect the prime
16 and alternative routes.

17 As I understand it, Mr. O'Rourke,
18 the feeling seems to be that the pipe and supplies will
19 generally be railed to Hay River and therefrom barged
20 down the Mackenzie River to the various off-loading
21 points for the construction of the pipeline. Is that
22 basically correct?

23 WITNESS O'ROURKE: You're
24 in the prime route now?

25 Q Yes.

26 A That would apply to the
27 prime route.

28 Q Now, if we turn to the
29 interior route going through the Yukon, is there a
30 variation then on that theme just stated?

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1 A I think, Mr. Veale, I'd
2 like to refer to some material that we talked about in
3 Yellowknife dealing with the alternate route -- the
4 interior route. We pointed out at that time that
5 the C.N.-C.P. logistic study came in after Arctic Gas
6 made their filing, and the Arctic Gas filing assumed
7 that 138 miles of pipe to be exact would arrive through
8 the Port of Skagway and move on by rail and highway
9 through Whitehorse up the Dempster and to mainly that
10 portion of the pipeline past through the Yukon north of
11 Old Crow.

12 When we in C.N.-C.P. did our
13 study, we assumed or we concluded that the more desirable
14 route would be a combination of rail, barge, and high-
15 way via Hay River and a transfer point in the vicinity
16 of Arctic Red and across the Dempster to the
17 pipeline right-of-way.

18 Q Now, has any conclusion
19 been reached -- you presented two alternatives for
20 supplying the interior route, are you going to adopt
21 some of each then? Are you stating as a fact it is
22 likely that Skagway will be used for 138 miles of
23 pipe?

24 A What happened was that
25 we were working, we being the two groups, Arctic Gas
26 and N.E.S. on one side, and C.N.-C.P. on the other
27 side, we were working with a little different set of
28 assumptions, and one of the points I tried to get across
29 at the Yellowknife appearance was that if the source of
30 pipe supply, or if the transportation rates should

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1 change, or if they varied, these could cause variations
2 in the flow pattern for materials being delivered to
3 the pipeline right-of-way. Given the set of assumptions
4 that each of us had when we made our conclusions orig-
5 inally, we ended up with the routing patterns. The
6 point I was making at Yellowknife was that if conditions
7 changed again, you could have either or a combination
8 of these two routes being used.

9 Q Well, is it possible then
10 that the situation could change to the extent that the
11 Skagway-Whitehorse-Dempster route could ultimately be
12 used for supplying the entire material requirements
13 and pipe requirements for the interior route?

14 A Now when you say "the
15 entire requirements for the interior route" you're
16 talking the Canadian portion of the Prudhoe Bay lateral?

17 Q Yes.

18 A From the Alaska-Yukon
19 border over to somewhere in the vicinity of Arctic
20 Red River or right to the junction point?

21 Q To Arctic Red.

22 A Pardon me?

23 Q To Arctic Red River.

24 A I would see that as a
25 possibility for pipe. I think I explained once before
26 that depending on the origin for the fuel requirements,
27 if this fuel were to originate in Edmonton then probably
28 it would follow the Mackenzie route, the river route.
29 Certainly the contractors' equipment and camps would
30 be brought across from the mainline into -- via the

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1 Arctic Red jump-off point, if you will, to pints along
2 the section of the line through the Yukon.

3
4 Q So if I understand you
5 correctly, Mr. O'Rourke, you're stating that there is a
6 difference between what type of material will be supplied
7 and if it is pipe there is a good chance or a possible
8 chance that the entire Canadian portion of the interior
9 route would be supplied through Skagway, Whitehorse,
10 and the Dempster Highway.

11 A I think I should add a
12 little more to that.

13 Q Can you agree with that
14 statement?

15 A Well, it would -- yes, if
16 your pipe were to be supplied from offshore origin, this
17 is the additional comment I wanted to make. We believe
18 it's possible that the pipe even from Welland could
19 be brought by ship around to Skagway and brought in
20 via that route. It would depend on the prices that
21 were prevailing in the shipping market at the time.

22 Q So in other words, regard-
23 less of source, whether it's Japan or Welland, Ontario,
24 it could be that the pipe for the interior portion, the
25 Canadian portion of the interior route would be brought
26 through Skagway.

27 A Yes, that's conceivable.
28 I just would like to clarify a point here also, when
29 we talk of Arctic Red it's really not the entire
30 Canadian portion of the Prudhoe Bay lateral; there are

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1 still a few more miles from the Mackenzie River crossing
2 over to the Travaillant Lake junction.
3

4 Q AT Yellowknife with res-
5 pect to supply routes you indicated that at that time
6 you were considering actual use of the railway from
7 Skagway to Whitehorse. Now it appears that there has
8 been a decision by the Government of Canada to speed
9 up the construction of the Skagway-Whitehorse Highway.
10 Now if that highway is complete at the time you need
11 to supply the interior route through the Yukon, were
12 that chosen, does that substantially change your
13 cost estimate of the supplies?

14 A I wouldn't say substantially,
15 no. What would happen is that some truckers would be
16 able to get into the picture in competition with the
17 White Pass & Yukon Railway, and in order to capture the
18 traffic from the White Pass & Yukon Railway they
19 wouldn't -- it wouldn't be necessary, perhaps, it
20 would depend, it would be a give and take affair but
21 they wouldn't deliberately go substantially below the
22 existing rail rate to capture the traffic. They would
23 try to go, say, a nickel under and hope the railway
24 wouldn't respond.

25 Q But from your point of
26 view the advantage would be that you could in fact
27 avoid a whole area of Whitehorse that you would need
28 to transpose all that pipe from rail to truck, and you
29 could just put it onto truck directly at Skagway and
30 take it right out to the Dempster. That would be a cost-

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1 saving to you, would it not?

2 A Depends how the trucker
3 priced his service. If he saw this as a potential
4 cost-saving for you, he might build it into his price.

5 Q You don't seem very
6 confident in the truckers.

7 A Well, I should perhaps
8 just add for your information that the White Pass &
9 Yukon Railway, as you probably know, does have a truck-
10 ing subsidiary, and that in conversations with the White
11 Pass & Yukon Railway officers they have advised me that
12 they would be interested in doing some of the trucking
13 that would be required for this move, if it were to
14 take place.

15 Q And that's where you
16 got your nickel under-bid, I guess.

17 A No, this is pretty stan-
18 dard all across -- you know, across the country, not
19 just here.

20 Q However, it would be
21 conceivable that you would have competitors who would
22 come in substantially under the rail cost.

23 A I say I don't think they
24 would make that substantial reduction in the first
25 instance. They would perhaps try to estimate or guess
26 what the railway's response would be to an under-cutting
27 bid, and try to slot in where they think they belong
28 and they would also be pretty confident that if they
29 quoted wrongly and if the railway were to meet their
30 price, that the buyer of the service would come back

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1
2 to him and give him a second chance.

3 Q Mr. O'Rourke, just to
4 establish how much we're dealing with in terms of
5 mileage, it was initially said it was 138 miles of
6 pipe weighing 133,000 tons. Now if the entire Canadian
7 portion of the Yukon portion of the interior route were
8 supplied what would the mileage be and the tonnage
9 be in that case?

10 A May I have a few minutes to
11 do some arithmetic? Mr. Veale, I think we're talking
12 of the additional mileage that would carry, supply
13 pipe to the Mackenzie River crossing just north of
14 Arctic Red River. In this instance there would be 69
15 additional miles of pipe which is approximately equi-
16 valent to 66,000 tons.

17 THE COMMISSIONER: Well, it's
18 about a thousand tons a mile?

19 A In round numbers, a little
20 less.

21 MR. VEALE: Q As I understand
22 it, Mr. O'Rourke, when it comes to questions of supply
23 it has been yourself that has supplied the capital
24 figures that form portions of the entire routing
25 costs that are dealt with in the direct examination.
26 In other words, the prime route has been set at a
27 particular figure, it's now around seven billion, I
28 believe, in '74 dollars. That includes, I understand,
29 your estimate of the cost of construction of barging
30 facilities at Hay River, and barging down the river to

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1 the various points, is that correct?

2 A I have to hedge a little
3 bit on this. We gave figures to Northern Engineering
4 Services. I don't know how exactly they picked up our
5 information and built it into their capital cost
6 estimates.

7 Q I see. Well, Mr. Dau
8 could presumably explain that.

9 WITNESS DAU: As I remember,
10 sir, we did use his figures in the unit freight rates
11 from Hay River by barge. It was our estimate of
12 trucking cost once it gets to the stockpile points
13 along the river, and it was Northern Engineering's
14 estimates of the costs of the docks, wharves, and
15 stockpile sites down-river.

16 Q Mr. Dau then, when you
17 arrived at a figure, capital cost figure for the
18 alternate routes, the Fairbanks corridor and the Fort
19 Yukon corridor, what figures and whose figures did you
20 use to arrive at those costs?

21 A I'm pretty sure in all
22 cases there were estimates by Northern Engineering.
23 We had the figures that were used in the prime route
24 case, which included unit cost for transportation by
25 truck and so forth. We had cost of material delivered
26 at various delivery points, such as Hay River. I
27 believe at various locations of docks along the Alaskan
28 coast -- Seward, Valdez I think we had one. This is
29 the price of materials delivered there, and we built the
30 cost estimate on that basis.



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1
2 Now, one thing I want to caution
3 you is that we did not develop the capital costs for
4 the alternatives, alternative corridors -- Fairbanks,
5 Fort Yukon -- in exactly the same way that we did the
6 base case. The prime route, the prime route is done
7 in a vast amount of detail, with construction spread
8 identified, and precise quantities going in certain
9 years and so on. We were well aware before we started
10 the exercise that considering it as a system both of
11 the two prime alternatives-- Fairbanks and Fort Yukon --
12 are obviously going to be much more expensive than the
13 prime route. Therefore we did not put in the same amount
14 of detail in analyzing those capital costs. We trans-
15 ferred -- we had unit costs worked out in great detail
16 on the prime route and we used some judgment in assign-
17 ing that type of a unit cost to certain sections of the
18 alternative corridors. We do not have the same backup
19 information for the alternative corridor costs. In our
20 opinion, they are sufficiently accurate to support the
21 differences in cost that we have listed.

22 Q Well, could you give me
23 figures now comparing the cost of supply in the prime,
24 interior, and two alternate routes? Do you have those
25 figures available?

26 A Talking logistics cost
27 only? No sir, I do not have those figures available.
28 You must remember that in many instances we use delivered
29 cost for some items; and we have not attempted to break
30 out the logistics cost as such. We certainly did on the
prime route on pipe, for instance, we were very interested

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1 in what the freight was; but in many other cases it's
2 a delivered cost so I do not have those logistics costs
3 with me, no, and I'm not sure that we have them for all
4 of the alternative corridors. I think in some cases they
5 were estimates of cost delivered at a particular site,
6 for some items.

7 Q Well, you've stated that
8 you have made an assumption that the logistics cost
9 on the alternate routes would be substantially higher
10 than the prime or interior route. Now, what are the
11 assumptions underlying the position you've taken?

12 A Barge transportation
13 costs are much cheaper than highway transportation
14 costs, for instance. Trucking by road.

15 Q Well, if you're using
16 ports such as Skagway and Valdez you're in fact achiev-
17 ing the same cheaper costs of ocean travel and water
18 travel, is that not correct?

19 A If the ocean travel was
20 the same. I'm referring to the overland, moving it
21 from the port to a particular site.

22 Q So basically then if you
23 are talking about delivering all your supplies for the
24 two alternate routes, that would be same cost, or in
25 the ballpark of the delivery of the pipe by the barge
26 system to points of actual delivery. Up until that
27 point it's the same method of transportation.

28 A I'm not sure I understand.
29 You're saying that the material that is supplied to
30 a particular port, say Valdez for instance, we got a



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1 price for material delivered to Valdez and then had
2 to prepare estimates to deliver it from that point to
3 wherever it was going to be used, if we hauled it for
4 instance from that location to wherever; we determined
5 that cost. The point I was trying to make was that
6 the transportation costs by barge is much cheaper than
7 the transportation cost by truck, and therefore the
8 river system gives you a significant advantage in
9 transportation cost.

10 Q I can appreciate that,
11 but my position is this, that you could supply all the
12 pipe for the alternate routes to points such as Valdez
13 and Skagway. Then you could use trucks to lay them out,
14 string them out on your route. Now there's a cost saving
15 there, isn't there, because you haven't required rail
16 transportation to get to those particular areas? You've
17 saved costs. I'm basically questioning your assumption
18 that the alternate routes clearly involve increased
19 supply costs.

20 WITNESS O'ROURKE: I don't
21 know if I can agree with you, Mr. Veale, because --
22 partly because I don't have the information. One of
23 the factors that has to be brought into the examination
24 is the determination of ton miles involved in getting
25 these materials delivered from the ports to the stock-
26 pile, and what Mr. Dau was getting at when he talks
27 about the comparative costs of barging and trucking,
28 is that in the work that we did and provided to Northern
29 Engineering, barging by itself on the river is a cost
30

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1 in the order of five to ten cents a ton mile; whereas
2 at the same time we were estimating trucking costs to
3 run in the order of 15¢ and better per ton mile. So
4 it's a factor -- to get at the answer to your question,
5 I don't think we have the answer right now; to get
6 at it, though, would require summation or evaluation
7 of the total ton miles involved in getting this material
8 delivered, and then comparing that ton miles, if you
9 will, or that worked out on the other system and
10 factoring it by the cost differential between the two
11 modes.

12 Q So my conclusion from
13 that, Mr. O'Rourke, is that we can question the assump-
14 tion that the supplying of the alternate route is
15 necessarily going to be an increased cost, because
16 you've just stated that that information has not been
17 collected and evaluated.

18 WITNESS DAU: The cost
19 estimates for the alternative corridors, as I recall
20 them, are based on delivering material to Prudhoe by
21 barge, obviously on the same basis that we did for the
22 prime route.

23 Q That would be only for a
24 portion.

25 A Correct, but it has to be
26 back-hauled some distance. It's economic to do so.
27 The rest of the material, particularly in Alaska, is
28 obviously delivered to the southern ports in Alaska
29 and by rail or highway haul to its destination. For
30 the portion in the Yukon, some comes through by rail to

Dau, O'Rourke, Williams, Clark,
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1 Whitehorse and so on, rail to Whitehorse or road to
2 Whitehorse, and so on, and distribution. Going further
3 down, it obviously has to go into by rail to Fort Nelson
4 and truck haul from Fort Nelson to meet somewhere on the
5 haul out of Whitehorse. I don't know where that point
6 happens to be. Because of the long distances involved
7 for truck haul, as I recall it's my opinion the
8 logistics cost is much higher on that case than it is
9 by shipping by rail to Hay River and distributing on
10 the barge system down the river and for some portion
11 of the Alaskan by bringing it around Barrow by barge
12 to Prudhoe Bay and the other stockpile points on the
13 Arctic coast.

14
15 Q That then, Mr. Dau, is
16 your opinion and as I understand it, that opinion has
17 ~~nt~~ been backed up by an actual costing as suggested by
18 Mr. O'Rourke a minute ago.

19 A I do not have the details
20 to that. I'd have to get back into cost estimate and
21 try to determine whether that information was quickly
22 available. I suspect it's not in the detail you're
23 asking for.

24 Q In fact, you have only
25 gone into that kind of detail that you're talking about
26 and I'm talking about on the prime and interior routes.

27 A That is correct.

28 Q It's possible that your
29 opinion in that area could be proved wrong by facts if
30 an actual estimate was conducted by Mr. O'Rourke.



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A It's a possibility.

Q Which would in effect
then change the entire costing of the alternate routes.

A If it did, it would be a
very minor amount, in relation to the differences in
cost between the alternatives and prime route.

Q I was talking about delivery
of Alaskan gas from Prudhoe Bay direct, without connect-
ing up with Mackenzie Delta gas, it could be extremely
relevant.

A I'm sorry, sir.

Q Well, Mr. Gibbs has
examined at length about bringing gas from Prudhoe Bay
directly down Fairbanks and not connecting up at all
with Mackenzie Delta gas.

A Yes.

Q So I'm suggesting that
if your assumptions on costing are incorrect, the actual
cost between the prime route and the Fairbanks route
could be a lot closer than the evidence would suggest,
the evidence you presented.

A You're talking about
American gas, Alaskan gas to American markets and
completely ignoring Canadian gas? No sir, I cannot
agree with you. In my view the prime route for that
system that you've described is still by far the better
route, and the reason it's the better route is it's
shorter by 326 miles, I believe; it has much easier
construction terrain -- the primary has; it does not
have the difficult mountainous construction, and it would



Dau, O'Rourke, Williams, Clark,
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1 be, in my view, far cheaper.

2
3 Now I have not worked out that
4 system. That's an opinion.

5 Q If we go back to talking
6 about Japan as a source of all the pipe for the entire
7 route, that opinion you've just given may not hold,
8 because in fact it may become cheaper to supply pipe
9 through Skagway than it is through Hay River.

10 A I can't believe or conceive
11 of a system, sir, that would have only Japanese pipe
12 in it.

13 THE COMMISSIONER: Well, there's
14 one in Alaska, isn't there?

15 A I'm talking about a system
16 in Canada, sir.

17 Q Pardon me?

18 A A system in Canada, sir.

19 MR. VEALE: Well, it wouldn't
20 be the first time that Japanese had penetrated the
21 Canadian market.

22 Q When you speak, Mr. Dau,
23 about the advantages of the prime route because it in
24 fact goes close to the Beaufort Sea, Mackenzie Basin,
25 is a strong reason for going through the prime route;
26 would it not be fair to say that when you choose an
27 alternate route such as Fort Yukon or Fairbanks,
28 the advantage applies there to a similar although
29 presumably lesser extent in that the Dempster Highway,
30 which the pipe from the Mackenzie Delta would follow,
passes through the Eagle Plain basin which you have

Dau, O'Rourke, Williams, Clark,
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1 ranked No. 2 with Northwestern Canada.

2 A Yes, the lateral from the
3 delta would pass through that particular basin. Obviously
4 it would be much closer than it would on the prime
5 route, but in that instance that you've described there
6 would not be a line that would pass along the Arctic
7 coast, which I also understand is a prime area for
8 exploration. You know, there's some on both sides.

9 Q So it's not a totally
10 clear-cut situation then, with respect to the prime
11 route. The advantages of the prime route, because of
12 gas potential, there is gas potential on the alternate
13 corridors as well?

14 A Yes sir, I think we've
15 said so. It's a matter of degree, and I'm not the man
16 to talk about that, sir.

17 Q Now it strikes me that in
18 the evidence that you've presented here in Whitehorse
19 that with respect to virtually all statements on the
20 Fairbanks route and the Fort Yukon route, that you've
21 delved into generalizations and opinions rather than
22 based them on scientific facts and completed research,
23 which would apply, of course, to the prime route and
24 the interior route. Is that a fair comment?

25 A With respect to the
26 engineering and the route location and so on, is that
27 what you're talking about, or are you talking about the
28 overall --

29 Q Well, deal with your
30 area as well, it certainly applies to all areas.



Day, O'Rourke, Williams, Clark,
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1 A Yes, with respect to the
2 design and engineering, it's obviously not -- and
3 costs -- it's obviously not in the same depth because
4 it's quite apparent that we have some 900 or more
5 additional miles of 48-inch pipe at some additional
6 cost of more than \$2 billion. Now there's no way that
7 a logistics cost can affect that difference of, I think,
8 it's \$2.3 billion to any significant degree. There
9 is no way that there could be a reduction in construc-
10 tion costs on the Fairbanks corridor that could affect
11 that 2.3 billion dollars to any significant degree,
12 and we think -- and it's our opinion -- that the
13 judgment numbers, if you would like, judgment cost
14 estimates are as accurate as we can get them without
15 going into the same amount of detail that we did on the
16 prime route. We don't think that's necessary with res-
17 spect to costs or the design of the system, and I can't
18 speak to the other matters.

19 Q Well, let me deal with
20 the particular area that was dealt with on page 6 of
21 the direct evidence. Now in the third paragraph the
22 statement is made that Arctic Gas has taken the
23 position that it is environmentally as well as econom-
24 ically advantageous to minimize miles of pipe and
25 numbers of appurtenant facilities. Now Mr. Hemstock,
26 is that a major consideration relating to the environ-
27 mental assessment that you have done on the prime,
28 interior, and alternate routes?

29 WITNESS HEMSTOCK: Yes, the
30 number of miles of pipe are a major -- the number of



Dau, O'Rourke, Williams, Clark,
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1 miles of right-of-way are a major consideration in
2 environmental impact assessment.

3 Q Would you not agree that
4 that particular statement does not hold true in all
5 situations? There would be --

6 A I agree that that does
7 not hold true in all situations, and I think in our
8 evidence this morning you had an example of that where
9 I said that I favored the cross-Delta route and much
10 of my reasoning is on the basis of the lesser number of
11 pipeline miles of right-of-way. Dr. Banfield expressed
12 concern on the impact on a unit basis, if you like,
13 or a mile by mile basis across the delta, and today he
14 came up with a different assessment. So that it's simply
15 one of the factors; but to me it's a major factor to
16 consider the number of miles of right-of-way that are
17 going to be required.

18 I believe Dr. Banfield also has
19 some comments on the Fairbanks corridor.

20 Q These are extemporaneous
21 comments again?

22 THE COMMISSIONER: Go ahead,
23 Dr. Banfield. I'm anxious to hear from you. Don't be
24 dissuaded by these --

25 WITNESS BANFIELD: Thank you,
26 sir. You increase my confidence.

27 To speak directly to the
28 point raised by Mr. Veale, I think that as a general
29 principle it's legitimate, in other words miles of
30 right-of-way; however, I'll agree that a notable exception

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1 would be the necessity to avoid some high priority
 2 environmental situation, and a good example is what
 3 we discussed today, the cross-delta suggestion is
 4 indeed a considerable saving in mileage but as I pointed
 5 out, there are some priority environmental concerns.

6 I am interested in explaining
 7 to some degree the difference in intensity of research
 8 involved in the various alternative corridors, and
 9 if you examine the data that has been presented for
 10 each one of the biotic components -- vegetation, fishes,
 11 birds, mammals -- you see that they fall into four
 12 general headings. One is "Environmental setting," the
 13 second is "An estimation of environmental impact,"
 14 thirdly, "Research on simulated environmental impact
 15 situations", and finally "The recommendations of mit-
 16 igative procedures to lessen the environmental impact."

17 Now when we started to inves-
 18 tigate the alternative corridors, as far as background
 19 information or environmental setting was concerned,
 20 our literature review indicated that there was far more
 21 information already published about the environmental
 22 setting along the Fairbanks route in particular, and
 23 to some extent on the Alaskan portion of the Fort
 24 Yukon route. This information is published, and also
 25 there is considerable information available in the
 26 various Game Branches, the Yukon Game Branch studies,
 27 as well as Canadian Wildlife Service information. So
 28 at that stage it was clear to us that the missing area
 29 of information was in the more remote areas, those
 30 crossed by the prime route and the interior route, and

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1 this explains the reason for the great emphasis on
2 research in those -- along those two corridors, to
3 an apparent neglect of the other two corridors.

4 The other point I would like
5 to make is that under those other headings such as

6 "Identification of environmental impact"
7 and "Simulation studies of environmental impacts"
8 and finally "Mitigative procedures",
9 everything that was studied and written about the prime
10 and the alternate interior corridor also applies to
11 vegetation, ecosystems, and the various fisheries and
12 wildlife units along the other two corridors that we've
13 considered here, the Fort Yukon and the Fairbanks.

14 MR. VEALE: Q Well, just to
15 follow that up, Mr. Banfield, would you advise me of
16 the material that you used relating to fresh water
17 fisheries on the Fairbanks and Fort Yukon corridor
18 assessment?

19 A I believe it's mentioned
20 specifically on the last page of the -- "An assessment
21 of alternate gas pipeline corridors in relation to
22 potential damage to fish populations," by Aquatic
23 Environments Limited, July 6, 1973. "

24 Report No. 1 on Appendix "B",
25 list of reports.

26 Q Well, with all due
27 respect to the authors of that report, it is my informa-
28 tion in speaking with the fisheries personnel in the
29 Yukon Territory that there is simply no comparison what-
30 soever to the fisheries research that has been conducted

Dau, O'Rourke, Williams, Clark,
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1 on the prime and interior routes, and the fisheries
2 research on the alternate corridors. Now do you agree
3 with that?

4 A You're speaking of the
5 proponents research, or research in general?

6 Q Well, whatever research
7 you relied upon.

8 THE COMMISSIONER: Well, the
9 proponents research was directed towards the prime route
10 and not the alternate routes, isn't that so?

11 A This is what I explained
12 previously. My colleague has mentioned that there are
13 six pages of reference material which indicate published
14 reports on the fisheries studies dealing with the
15 alternative corridors that have been reviewed by Aquatic
16 Environments.

17 MR. VEALE:

18 Q Well, are you stating as
19 a fact that in your opinion adequate research into the
20 fresh water fisheries of the Fairbanks and Fort Yukon
21 route has been completed at this date?

22 A In order to make a primary
23 assessment as to the environmental hazards associated
24 with those alternative corridors, it is my view that
25 adequate information was available.

26 Q Well, Mr. Banfield,
27 I'll refer you to page 26, direct evidence, and about
28 ten lines down it's stated that:

29 "Alternate routes and corridors through mountainous
30 areas that are encountered along the Fort Yukon,
Fairbanks and interior alternatives restrict the

Dau, O'Rourke, Williams, Clark,
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1 lateral flexibility of routing since major
2 over-wintering and spawning grounds are
3 found throughout the mountainous areas
4 the possibility of disturbing fish is therefore
5 greater. "

6 Now I submit to you that there is no research available
7 to indicate where the fish spawn on individual stream
8 crossings on the Fairbanks route.

9 A On every stream crossing?
10 You're obviously correct.

11 Q Well, what stream cross-
12 ings then would have been adequately researched, from
13 your point of view?

14 A The whole system in the
15 Brooks Range as a start.

16 Q Well, let's go down to the
17 Fort Yukon, Fairbanks corridors.

18 A Part of that section is
19 common to both those corridors.

20 Q Would you elaborate on
21 that? We're talking in one case about the Porcupine
22 drainage, and in another case about a substantially
23 different drainage system.

24 A I'm sorry, sir, I'm getting
25 a little -- I don't understand. I understood you to
26 ask me to identify some drainage system that was well
27 studied on the Fairbanks or Yukon corridors. Am I
28 wrong in my --

29 Q That's fair enough, and
30 you've identified the Porcupine drainage?

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1
2 A No sir, I said the Brooks
3 Range. The streams in the Brooks Range, the Sag River,
4 for instance.

5 Q I see. Would you go on
6 then and elaborate as you get towards the Yukon
7 Territory on either the Fort Yukon or Fairbanks
8 corridor?

9 A I have only some very
10 general notes here on the detailed comparison. Any
11 greater detail obviously falls within the special
12 area of Dr. McCart, who is responsible for these
13 studies. He mentions specifically the salmon, three
14 species of salmon that occur in the Yukon drainage.
15 There are a number of other species of trout that
16 would be impacted much further down the Fairbanks
17 corridor into Northern British Columbia, for instance.
18 He mentions specifically the Kluane Lake area as a
19 recreational fish -- recreational resource as far as
20 the fish is concerned in the Kluane Lake area.

21 Another point he raised was
22 that many of -- along this route the proposed pipeline
23 extends parallel to major rivers for a long period
24 along a stretch of mileage, and it was his considera-
25 tion that that type of pipeline routing offered more
26 hazards through erosion control to a parallel stream
27 than where the pipeline route crossed streams at right
28 angles. He also has a number -- I was trying to find
29 it, I don't have a note of it here -- the number of
30 streams crossed, and it was impressively greater
31 along the total length of the Fairbanks route.

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1 I'm sorry, those are about the
2 summation of my notes that I have taken from consulta-
3 tion with Dr. McCart.

4 Q Did Dr. McCart personally
5 complete any studies on either the Fairbanks or Fort
6 Yukon corridor -- field studies?

7 A I don't believe so, sir.

8 Q Well --

9 A Wait, wait, just a minute.
10 Just a minute. Again I go back to the Brooks Range
11 and Dr. McCart and his research done on the streams of
12 the Brooks Range, and this is again along the Fairbanks
13 and Fort Yukon corridors, his information is probably
14 the most complete information available through any
15 source -- Governments of Alaska or the U.S. Federal
16 Government, or to the oil pipeline people.

17 Q So getting back to the
18 Yukon portion of the Fairbanks and Fort Yukon routes,
19 are you aware of any research, field research, that
20 backs up the statement made that major over-wintering
21 and spawning grounds are found throughout the mountain-
22 ous areas? That's on page 26.

23 A His concern is the one
24 you expressed, is the lack of an actual identification
25 of these sites, the fish populations in these streams
26 are well known but this was one of his concerns, that
27 there were many sites that were not known exactly and
28 this was a sizeable impact possibility.

29 Q You would agree then that
30 the research has not been done and it's very difficult

Dau, O'Rourke, Williams, Clark
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1 to determine the impact of fresh water fisheries on
2 the Yukon and Fairbanks route.
3

4 A A detailed study, yes.
5 As I indicated, one could take off a first general
6 assumption, but as for detailed analysis, you're quite
7 correct.
8

9 Q So the generalization
10 then that is made on page 26 has no research, direct
11 field research to substantiate it.
12

13 A No, that's not correct.
14 It has, as I've tried to explain --
15

16 Q The Brooks Range again,
17 is that --
18

19 A Right, right. But as
20 I think it's quite clear and I hope I made it clear,
21 those studies were based primarily, as I said, on a
22 review of the literature, the state of the art represent-
23 ing the knowledge and from those -- from that consider-
24 ation a first basic assumption was made.
25

26 Q It follows then that if the
27 state of the art is wholly inadequate, therefore your
28 conclusions and recommendations on the Fairbanks and
29 Fort Yukon route are wholly inadequate.
30

31 A .Sir, you misjudge a biolo-
32 gist. I would always claim that the state of the art
33 was wholly inadequate. It's how we survive.
34

35 (LAUGHTER)

36 Q Well, that's interesting
37 then, Mr. Banfield.
38

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1 MR. MARSHALL: That bears quite
2 a resemblance to lawyers.

3 MR. VEALE: Q You would also
4 apply that then to the prime and interior routes?

5 A I have no special dispen-
6 sation from above and complete knowledge on all these
7 subjects evades me and my colleagues, sir.

8 Q That's becoming obvious.
9 Mr. Banfield, ^{if} we talk about the Porcupine caribou
10 herd, you've stated that in your opinion the Fairbanks
11 corridor would have less impact on caribou than the
12 prime route. Is that correct?

13 A It's a difficult judgment
14 to make. The judgment one is forced to make
15 in answering that is the relative importance of the
16 fawning grounds as opposed to the wintering grounds,
17 since that is a choice that is given by this comparison
18 and so my feeling is that probably the Fairbanks route
19 has less impact on the Porcupine caribou herd, and
20 that's based on the area. To quantify that judgment,
21 it's based on the area, the comparative areas of the
22 winter range of the Porcupine caribou, and the fawning
23 range, and the fawning range is more restricted than
24 the winter range so it is my impression that a routing
25 across the winter range is less -- holds less hazards
26 than across the fawning range.

27 THE COMMISSIONER: Well, Mr.
28 Veale, I think we'll stop for a few minutes for a cup
29 of coffee.

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(PROCEEDINGS RESUMED AT 4:10 P.M.)

THE COMMISSIONER: All right,
ladies and gentlemen, let's come to order.

MR. VEALE: Q Mr. Banfield,
if we can continue on, I believe you had stated that
in your opinion the Fairbanks corridor passed over an
over-wintering ground, and the prime coastal route
passed over a fawning ground, and that in your opinion
the Fairbanks corridor would have lesser impact on
caribou. Is that correct?

WITNESS BANFIELD: I was
thinking primarily of the Porcupine caribou herd and
I made my judgment on that. There are other considera-
tions, there are other caribou herds, other considerations
particularly of mountain caribou population in Southern
Yukon, Northern British Columbia that --

Q Are they significant
herds, Mr. Banfield?

A I would say that the
rarer a species gets, the more significant it gets,
until you get down to a rare and endangered, perhaps.
I don't think numbers --

Q Do you know the numbers?

A I have a few ballpark
numbers. They are usually in hundreds. The bands
stay in the Kluane Lake National Park area, something
in the neighborhood of less than 500, something like
this, and there are other herds down through
British Columbia.

Q Do you rank those with

Dau, O'Rourke, Williams, Clark,
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1 the Porcupine caribou herd which has an approximate
2 figure of 120,000?

3
4 A Again, sir, the ranking
5 is not particularly relevant. It might be that if the
6 Porcupine herd was reduced to 10,000, I would be much
7 more concerned than it is at 110,000.

8 Q Well, you are advocating,
9 of course, that the prime route be the one that is
10 adopted in any event, even though it does transect the
11 120,000 caribou herd as opposed to the groups of 100,
12 that you've referred to.

13 A Yes sir, this problem
14 obviously required intensive study, and this is why the
15 sponsor has funded very extensive and intensive studies
16 of the Porcupine caribou herd, with particular reference
17 to a proposed route crossing the fawning grounds on the
18 North Slope, and in all our statements you'll see a
19 condition applied, and that is subject to the construc-
20 tion, operation and maintenance of the proposed pipe-
21 line being undertaken as indicated in the environmental
22 impact statement, 14-D. We feel that if these proced-
23 ures are followed, this covers winter construction, for
24 instance, snow roads, confinement of activities through
25 the station, compressor station pads and a number of
26 similar statements which you have read, we feel that
27 if these mitigative procedures are followed, that the
28 Porcupine caribou herd will not be substantially affec-
29 ted or im pacted. I don't like using that as a verb,
30 but I've just done it.

Q Mr. Banfield, you will

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1 recall attending a session of the applicant on April
2 13, 1973.

3
4 A Yes sir.

5 Q Now at that session there
6 were wide-ranging discussions over the merits of the
7 interior and the prime route, through the Yukon Territory
8 in particular.

9 A Yes.

10 Q Now it will be no surprise
11 to you that there was a difference of opinion expressed
12 at that meeting between yourself and George Calef Now
13 I have the references here, the minutes here that have
14 been kindly produced by the applicant company, and they
15 indicate that George Calef who is a mammalogist or
16 a biologist specializing in mammalogy, it was his
17 opinion that the pipeline route would be better off
18 to go down the interior route rather than prime route.
19 His basis was that the fawning grounds, as you call them,
20 were so critical that if there was any disruption of
21 the fawning grounds it could ultimately seriously
22 endanger the Porcupine caribou herd. I gather you have
23 taken the opposite position.

24 A Yes sir, I remember the
25 discussion and I think your summary is fair enough. I
26 am not alone, of course, in my appraisal; but based on
27 Dr. Calef's concerns, we continued on past that
28 date of April '73 to conduct continuing studies
29 in order to be fairly convinced of the views that were
30 expressed at that meeting that were not in line with

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1
2 Dr. Calef's.

3 Q I see, and would you indi-
4 cate the basis of that research?

5 A These are reports that
6 are filed in the biological series accompanying the
7 application, and continuing research on the Porcupine
8 caribou. I think it's fair to say that we have far
9 more field experience now on which to base our judgment
10 than Dr. Calef had then.

11 Q Do you have anyone in the
12 field at this time continuing your research on the
13 Porcupine caribou herd, or have you completed it?

14 WITNESS HEMSTOCK: Our work
15 with the Porcupine caribou herd now is pretty well
16 restricted to what we call a monitoring operation where
17 we follow the movements of the herd generally during the
18 year. We check its time of arrival onto the North Slope,
19 we take a look at its movements during the summer, and
20 check again in the fall. So that it's a monitoring
21 work which we intend to continue through until and if
22 we get construction permission.

23 Q Well, Mr. Banfield, in
24 light of your earlier comments today, would it be fair
25 to say that if there is some margin of error in your
26 final assessment of the importance of the fawning grounds
27 of the Porcupine caribou herd that the potential
28 destruction could be extremely serious to the extent
29 that you would prefer to go down the Fairbanks corridor
30 and avoid that destruction of the Porcupine caribou
herd?

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1 WITNESS BANFIELD: Well, we
2 feel that our judgment is based on good knowledge of the
3 risks associated with crossing the fawning grounds be-
4 cause as I say, we have studied that problem in great
5 depth because of its seriousness. The only chance we
6 see of a worst case error in judgment would be in the
7 conduct of the mitigative procedures during construction
8 and operation and maintenance of the pipeline when it's
9 put in. Now to refer to the other end of your statement,
10 as far as caribou are concerned -- and they are again
11 only one component of all the environmental factors
12 that we've considered, albeit an important one, perhaps
13 one of the most important ones, I've already said that
14 the Fairbanks corridor would be preferable, as far as
15 caribou are concerned.

16 Q Would you indicate whether
17 or not the cost could be assigned to that potential
18 destruction? In other words, the costs that have been
19 mentioned during the day have simply been costs of
20 materials, cost of pipe, cost of labor and so on and
21 so forth. Can a cost be added to the risk that is
22 being taken?

23 THE COMMISSIONER: To represent
24 the risk, is that it?

25 MR. VEALE: Yes sir.

26 MR. MARSHALL: Mr. Veale is
27 trying to -- I think I should stress that's his
28 term. Perhaps he could define it, it's an emotional sort
29 of term that the witness hasn't used, and that's part
30 of the question. Perhaps Mr. Veale could explain what

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1 -- how he's using it.

2 THE COMMISSIONER: Well, let
3 me ask you this, sir, without getting into an argument
4 about the extent to which building a pipeline along the
5 North Coast might adversely impact, as we say in the
6 business, the caribou herd, because presumably everyone
7 acknowledges a certain measure of adverse impact, what
8 do you say about Mr. Veale's notion that there should
9 be some means of quantifying the risk to the herd?
10 Would you care to comment on that?

11 A Well, my comment would
12 brief to say that at this stage in the development of
13 environmental impact assessment we have no way of
14 coming up with a cost benefit type of assessment of risk,
15 that would appeal to economists or engineers that they
16 could plug into a formula. Most biologists recoil at
17 this suggestion and --

18 THE COMMISSIONER: Do they?
19 And less so than engineers and economists, or more so?

20 A I don't know how much
21 the other professions recoil, sir.

22 Q You can't measure it.

23 A Sir, may I make a state-
24 ment? I feel that before coffee break perhaps some of
25 my responses to Mr. Veale may have obscured what is
26 really a great deal of common ground between us, and
27 that is that we environmentalists associated with this
28 group and in fact the sponsor would be the first to
29 agree that we don't have all the information that might
30 be obtainable, or an ideal amount of scientific

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1 information on these routes. As I've indicated, and
2 really didn't mean to be facetious, sir, it's a never-
3 ending accumulation of knowledge and a never-ending
4 process, and at no point are we going to say, "We have
now the final analysis that we can produce hard con-
clusions."

What I'm trying to indicate
that we conducted an overview analysis of these other
corridors and felt that we had at that point enough
information to come to a preliminary conclusion about
the environmental impacts and risks of these other
corridors.

THE COMMISSIONER: Thank you.
All right, carry on, Mr. Veale, and don't think that
I was -- I didn't want to pre-empt the question you
were about to put.

MR. VEALE: No, you expressed
it as well as I would have, sir.

(LAUGHTER)

THE COMMISSIONER: Well, we'll
never know, will we?

MR. VEALE: Q Mr. Banfield, on
page 34 of the evidence, the middle paragraph states
the Arctic Gas conclusion:

"In the light of environmental findings by
experts in each discipline,"
and it states that in part,

"The prime route would have the least effect
because it lies in ^{the}generally less productive
Arctic coast."

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Now you would agree that you're
not referring to the bird population when that statement
is made, is that correct?

A Well, Mr. Veale, that
expression is based on an ecological principle that
the productivity of Arctic ecosystems is less than the
productivity of temperate or moving southward boreal
or temperate or tropical ecosystems, it refers to the
whole subject of productivity, biotic productivity
which if taken to its extreme would include the bird
population. The waterfowl populations of the Arctic
are indeed impressive, but only for a very short period
of time, and probably if you weighed all the little
warblers that were in the woods around Whitehorse here
and some of the smaller bird life you'd be surprised to
find that as far as biomass was concerned there was
probably more birds here than the ducks in the Arctic.

THE COMMISSIONER: I don't quite
follow that. Let us say if the ducks -- are you dis-
counting the productivity of the Arctic in terms of
waterfowl or birds on the ground that they only come
there in the summer, so it's only sort of two over 12
times whatever, is that the way you're looking at it?

A Yes, part of their
productivity would have to be related to I suppose
Ecuador or California or some place like that.

Q I see that, but they --

A I think, Mr. Commissioner,
also one is impressed by the size of an animal and one

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1 often forgets, say, the biomass of mosquitoes in the
2 Arctic must outweigh all the waterfowl by some dreadful
3 factor.

4 THE COMMISSIONER: That was
5 last month.

6 MR. VEALE: Q Just following up
7 that statement, Mr. Banfield, when you mentioned earlier
8 in your evidence that there was a greater variety of
9 fish species on the Fairbanks and Fort Yukon corridors,
10 and that therefore that would be from your point of
11 view a more difficult area to traverse with a pipeline
12 than the prime route. Is that correct? If so, why
13 is that so?

14 A There's two principles
15 involved here. One is a very general ecology principle,
16 as I mentioned, the complexity and diversity of ecosyst-
17 ems increases as one moves southward and that's a general
18 sort of thing which theoretically should include aquatic
19 ecosystems as well. The problem with dealing with
20 fishes is that they have, probably a quicker explanation
21 of the diversity of species in a watershed that has to
22 do with the location and the mouth of the watershed,
23 and in dealing with one route, we're dealing with
24 primarily the Mackenzie River watershed that rises about
25 Jasper National Park and continues down to the mouth
26 of the Mackenzie. On the other hand, dealing with
27 these other corridors, you start dealing with other
28 watersheds, the Yukon watershed in particular, that
29 empties into Bearing Sea, and there are a few marginal
30 streams that -- particularly in the Haines area, for

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1 instance, that in fact also enter into the Pacific, and
2 so you get generally a diversity of species that are
3 related to where these fishes and aquatic species migrate
4 from, and to. So that it's altogether rather complex.

5 Q Does it not follow that
6 when you have a greater diversity and complexity in
7 an ecosystem that it is a more stable or stronger
8 system, and that the Fairbanks ecosystem with respect
9 to fish would be stronger and have a greater ability
10 to withstand a pipeline than the prime route along the
11 coast?

12 A I think I'll give you
13 a choice, Mr. Veale. You can accept a short answer,
14 which is "No," and probably a very long explanation;
15 but this type of explanation has been already introduced
16 to the Inquiry, particularly through the E.P.B. people.
17 But no longer do ecologists believe that diversity and
18 complexity relate to stability. There is mounting
19 evidence to indicate that northern systems are remark-
20 ably resilient to perturbation, and this is the defini-
21 tion that's now given. There are a number of papers
22 published on this subject. They appear in a number of
23 documents that have been filed with this, if you want
24 to go further I can --

25 Q You're stating then that
26 the theory that I just propounded is no longer in vogue
27 and you're adopting another theory which is strong
28 enough that you would base the routing of the pipeline
29 on it.

30 A Really, I do adopt the

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1 more modern biological theory associated with stability
2 of ecosystems. The routing of the pipeline is not
3 solely dependent on that theory.
4

5 Q No, but from your particular
6 expertise, that's an extremely important factor.

7 A It's an important factor,
8 yes.

9 Q I have a general question
10 relating to the evidence of Section 14-E and it relates
11 to the amount of water required on the prime route
12 as opposed to the interior route. Now at Section 14-E,
13 1.1, page 9, the table there indicates that the interior
14 route would require three million barrels of water,
15 and the prime route would require 14 million. Would
16 any member of the panel explain the vast difference?

17 WITNESS WILLIAMS: The esti-
18 mated quantities of water shown in the application,
19 by far the largest use of that water is for snow roads
20 and ditch flooding. Now, I think we've probably changed
21 our thinking somewhat in this area and I would expect
22 that those quantities would reduce; but the difference
23 that you speak of would be mainly attributable to the
24 large amount of mountainous terrain that the interior
25 route crosses where snow roads would not be used or
26 not required and where ditch flooding would not be
27 required. That includes both the Brooks Range and the
28 Richardson Mountain crossing. The estimate as shown
29 here contemplates quite a large quantity of water re-
30 quired for snow roads on the coastal plain. I think if

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1 we did a new estimate that that amount would be reduced
2 substantially in light of what we know now about the
3 use of snow fences and accumulating snow for snow roads.

4 Q Well, the amount of water
5 then is basically double, triple, whatever the ultimate
6 figure would be, on the coastal route as opposed to the
7 interior route. Now, if we are talking about Mr. Ban-
8 field's synergistic effect, if you were to loop that
9 line or if you were to put an oil pipeline along the
10 coastal route, that would be an extremely serious
11 consideration, would it not, Mr. Banfield?

12 WITNESS BANFIELD: Water is
13 a renewable resource. It's a multiple use of the water
14 that's a serious consideration, yes. I would have
15 to think in terms of some time scale, your assumptions
16 don't give enough to go on.

17 THE COMMISSIONER: Could I just
18 go back for a minute, Mr. Veale, before we leave the
19 subject?

20 Q Mr. Veale and you were
21 arguing about the stability or instability of the
22 Arctic ecosystem. Now is it fair to summarize the
23 thinking to which you subscribe in this way, that while
24 it may be that it used to be thought that the Arctic
25 ecosystems could be described as fragile, it is now
26 thought that they show remarkable resiliency within a
27 certain range, so to speak, of perturbation or damage,
28 but that when you reached the limit of that range
29 that they can tolerate, you may discover -- you may
30 find that they suddenly break down. Is that where the

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1 state of the art is at now?

2 A Yes sir, there has to be
3 some scale or range given to that statement. I have
4 my own views on this but I don't think it's appropriate
5 to develop them here in this particular panel.

6 Q Well, you're going to
7 Scotland or some place, so you might never develop
8 them again before this Inquiry. You said something
9 about a sabbatical, I hope we're on another panel by
10 the time you're back.

11 (LAUGHTER)

12 Quite seriously, if you wanted
13 to spend five minutes developing, or ten, developing
14 that matter right now I'd like to hear it. We're
15 coming back tonight anyway and Mr. Veale and you can
16 carry on your discussion then.

17 A Sir, I hope to -- I'm
18 largely in your hands, sir, but I hope to rejoin you
19 in Phase 3, whenever that may be.

20 Q Oh, fine.

21 A I think it's more pertinent
22 there.

23 THE COMMISSIONER: Well, forgive
24 me then. Carry on, Mr. Veale.

25 MR. VEALE: Q Well, Mr.
26 Banfield, in dealing with this matter of the water
27 on the prime route, it seems to me the time that you
28 -- the season in which you need the water is the winter
29 season in order to prepare snow roads. Now is that the
30 season in which you would have the most water available?

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1 on the prime route, or would there be problems on the
2 prime route because of rivers and lakes, small lakes
3 freezing right to the bottom? In other words, the
4 source of water may be in difficult short supply at
5 that time.

6
7 A I can do something on
8 this, but --

9 Q Well, go ahead.

10 A -- well, to say that I
11 rely in this case on information from Aquatic Environ-
12 ments and to point out that they are undertaking at
13 this point a survey of the available supplies of
14 water during the construction period, and this study
15 is being in conjunction -- is being done in conjunction
16 with Mr. Williams efforts, and I suspect that
17 he may have some information on this at the moment.

18 Q Well, you may have
19 expressed environmental concerns to him in this area,
20 have you?

21 A Yes, we have, of course,
22 but I can --

23 Q Would you tell us about
24 that?

25 A -- contradict one of
26 his statements, and that is that there is a considerable
27 flexibility in the dates in which these lakes freeze
28 over, and at the season in which the water might be
29 needed to start building the ice roads would be in the
30 freezeup and at that time there would be a very
thin cover of ice on the lakes on the North Slope.

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Q Well, what effect would
that have on the fish populations of the North Slope?

A There are a great variety
of lakes there, many of which have no fish in them and
those are the ones we propose to tap.

Q Mr. Dau, the minutes that
I was referring to a short time ago from CAGSL Meetings
with experts in various areas, you raised the question
of alternate routes and the minutes reflect you intro-
duced that at the session on April 12th and 13th to
discuss the matter, and you presented your environmental
experts with the routings, and asked them to make
assessments. Now, nowhere in those minutes is there
a discussion of alternates other than the prime and
interior route. Now were there meetings with your
environmental experts in all the disciplines to consider
the merits of the Fairbanks and Fort Yukon corridors?

WITNESS DAU: No, I'm sure
we didn't have a similar meeting for the alternative
corridors. We met with them individually, of course,
and discussed it, but not in a joint meeting similar
to the one in April.

Q Why would that be? Was
it not a matter of great importance?

A I don't recall why we
didn't, sir.

Q Mr. Dau, on page 13 and
14 of the evidence, you state that:

"Although the Fairbanks and Fort Yukon corridors
offer the advantage of summer construction,"

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1 you are less sure of actually completing construction
2 according to timetable set for the prime and interior
3 routes. Now, sir, that seems to me to be somewhat
4 inconsistent because if in fact your construction sea-
5 son has been lengthened, your access problems do not
6 exist, you don't need snow roads, you have highway
7 access particularly in the Fairbanks corridor. How do
8 you arrive at the statement that you're less sure of
9 your construction timing?
10

11 A Because the construction
12 plan, the schedule for doing the work is on the alter-
13 native corridors, has not been done in the same amount
14 of detail that it has for the prime route. We've made
15 some assumptions that we could in fact construction
16 in these areas in the summer without a detailed analysis
17 of weather records and things like that. I think the
18 assumptions are valid. We're just not as confident of
19 those assumptions as we are of the ones on the prime
20 route. We've not done the same amount of work on the
21 alternative corridors as we have on the prime route.

22 Q So it's a lack of research
23 then that has been done, and therefore your assumptions
24 -- that would affect your entire assumption, though,
25 that your timing might not be as good as on the prime
26 route. In other words, it could be that your assumptions
27 are completely erroneous and because of the longer
28 construction period and the requirement not to have
29 snow roads, you could in fact complete at an earlier date.

30 A No, I can't accept that,
sir. I personally believe that these are pretty

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Cross-Exam by Veale

1 optimistic assumptions we have made; if in fact there
2 is any change, it would probably mean that the time frame
3 would be extended, or that more construction spreads
4 would be required.

5 Q You're saying that more
6 construction spreads would be required, would that not
7 -- would it not also follow that because you have the
8 summer construction period that your time period for
9 the construction does not in fact increase at all?

10 A I'm sorry, I didn't
11 follow that, sir.

12 Q You have what is probably
13 an advantage on the Fairbanks corridor. You have good
14 road access along the entire route, all-weather road
15 access.

16 A Yes.

17 Q You have the opportunity
18 of all-weather construction. You are not limited to
19 the snow road construction that you anticipate on the
20 prime route.

21 A That's correct.

22 Q Now, can it not be
23 easily assumed that you would in fact be able to facili-
24 tate construction on a more timelier basis than on the
25 prime route?

26 A No, I don't think so,
27 sir. The summer construction also has problems with
28 respect to weather, rain; we may have an all-weather
29 highway adjacent to the route, but the pipeline route
30 itself in many cases is going to be several miles from

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Cross-Exam by Veale

1 that highway, and with continuous rains it would be
2 impossible to get there to work unless you in fact
3 constructed a work pad similar to the Alyeska project.
4 The point is that we have not done as much work in
5 developing this plan and schedule as we have in the --
6 on the prime route, and we do not have as much confidence
7 in it.

8 Q Did the work that you
9 did on the Fairbanks corridor, did you determine the
10 number of air strips already available on the corridor
11 and consider the number of air strips that would have
12 to be constructed in addition to the air strips already
13 there?

14 A I suspect we did, sir,
15 but I'm not positive. I can't recall the details of
16 that, but I'm sure in looking at the maps, for instance,
17 it's quite obvious that the air strips would be apparent
18 -- the ones that exist.

19 Q Does any witness recall
20 whether or not you would have to construct as many
21 air strips on the Fairbanks corridor as you would on
22 the interior and the prime routes?

23 A Oh, I'm sure there would
24 be less, sir. I suspect there would be less. Mr.
25 Williams is disagreeing with me, but I've flown the
26 route and there are quite a few existing air strips.
27 I don't have the details.

28 THE COMMISSIONER: Do you want
29 to have Mr. Williams' dissent on the record?

30 MR. VEALE: It appears that it

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1 doesn't matter to Mr. Williams, it doesn't matter to me.

2 WITNESS WILLIAMS: I am suggest-
3 ing that the 900 miles, additional miles on the Fairbanks
4 corridor is an appreciable number of miles, and in
5 addition to that Mr. Dau may have overlooked the leg
6 from the delta down to Whitehorse where a substantial
7 amount of snow road would be required, and it is isola-
8 ted, there are very few air strips along that corridor.

9 MR. VEALE: Q Along the
10 Dempster Highway?

11 A Yes sir.

12 Q Are you not aware of a
13 number of air strips there?

14 A I've flown over them.
15 I don't think it would be a very unusual happenstance
16 that they would fall in the right location for a pipeline
17 use.

18 Q Well, considering that
19 you already have the road, would it make a great deal
20 of difference, their location?

21 A The air strip location?
22 I would think it would be desirable to have air strips
23 at compressor stations, yes.

24 Q In your consideration of
25 the Fairbanks corridor, did you consider the factor of
26 availability of gas for a large city like the City of
27 Whitehorse? Did that enter into your considerations
28 about costs of the route and advantages of the route?

29 WITNESS DAU: No, it did not.
30 We were limited -- our studies were limited to the

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Cross-Exam by Veale

1 design and cost estimates and so forth.

2 Q You stated on page 33,
3 the last sentence of the evidence, that:

4 "Arctic Gas has been unable to determine any
5 substantial net advantage which would accrue
6 to the Canadian Northwest which would justify
7 the loss of market area advantages which would
8 occur if the Fairbanks-Fort Yukon corridors,
9 if chosen."

10 Now, if there were --

11 THE COMMISSIONER: What page is
12 that?

13 MR. VEALE: Page 33, sir, at
14 the last sentence.

15 Q Would it not be fair to
16 say that ^{if} it could be determined that the supply of
17 gas, say to the City of Whitehorse, were in fact the
18 cheapest that could be supplied as compared to cities
19 on any other of the alternate routes, that that would
20 be a net advantage to the Canadian Northwest?

21 A No, I'm not sure, sir.
22 I wouldn't be the one to respond to that.

23 Q Someone made the state-
24 ment ~~that~~ there were no net advantages to the Canadian
25 Northwest, and I'm suggesting that there is one.

26 MR. MARSHALL: Well, I don't
27 think that is quite what it says. They're talking
28 about any substantial net advantages.

29 MR. VEALE: I'm suggesting that
30 it could be a substantial net advantage.

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1
2 WITNESS TRUSTY: I think the
3 interpretation of the statement is that it's saying that
4 net advantages in the Canadian Northwest that would
5 outweigh the costs induced for the full market area
6 served by the pipeline system, in that case what we're
7 saying is that when you take into account the increased
8 tariffs that would result from these alternative routes
9 and the gas consumption and the effect of those
10 increased tariffs on gas consumption in Canada and
11 United States, that those numbers would outweigh any
12 net advantages in the Canadian Northwest.

13 Q So any net advantage that
14 would accrue to the Canadian Northwest is simply over-
15 balanced by the net advantage to the greater populations
16 in the southern areas?

17 A That's correct.

18 THE COMMISSIONER: What is the
19 -- I must have missed something you said. You referred
20 to one substantial net advantage in the Canadian North-
21 west.

22 MR. VEALE: I was suggesting that
23 -- I was taking the position that the supply of gas
24 along the Fairbanks corridor would result in a net
25 advantage to the population of the City of Whitehorse
26 in that it could possibly be the cheapest supply.

27 Q Now at page 30 of the
28 evidence the second paragraph states that:

29 "The Mackenzie Valley is less mature and that
30 the Yukon and particularly the Fairbanks corri-
31 dor,"

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Cross-Exam by Veale

1 I would add,

2 "has a more developed infra-structure."

3 Now I am suggesting here that the impact on a more
4 developed infra-structure would be substantially less
5 than it would be on the immature infra-structure that
6 you posed in the Mackenzie River Valley, and that
7 that in itself could be another substantial net advantage
8 for the Canadian Northwest. I would add to that ques-
9 tion the fact that the prime route and the interior
10 route pass over undisturbed areas, and there may be
11 a balancing net advantage to have those areas undistur-
12 bed. Would you comment on that?

13 A On the first portion of
14 your question I take it you are referring here to the
15 point that's made about economic maturity of the two
16 regions, and I agree with you. The second part of your
17 question I presume relates to environmental affairs,
18 and I'm not the person to respond to that.

19 Q Maybe Mr. Banfield would.

20 WITNESS BANFIELD: Nosir,
21 as I already indicated, environmentalists are not
22 able to respond to cost benefit studies in this area,
23 to produce cost benefit analysis in this area.

24 Q Are you hopeful of doing
25 more research in that area? I understand that's an area
26 of active consideration.

27 A There are developments
28 in this area and I'm not -- I wouldn't rule out the
29 possibility that eventually environmental matters may
30 be costed and related to other hard facts.

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1 Q Would you go as far as to
2 recommend that to the applicant?

3 A No sir. It's too
4 distant.

5 Q Is it any more distant
6 than the research that has been done on the synergistic
7 effects of two pipelines?

8 A No, I think they're
9 probably equally in the realm of concepts

10 Q I turn now to page 35,
11 the second sentence states that:

12 "The indirect effects of the pipeline along
13 either route could be expected to be similar
14 overall, and in neither case would significant
15 adverse effects upon the social system of the
16 Canadian Northwest be expected."

17 Now, it appears from that statement that there is an
18 assumption there, that there is an overall cohesive
19 social system in the Canadian Northwest. Is that an
20 assumption in that statement?

21 WITNESS TRUSTY: A No sir.

22 Q Well, then, what is the
23 basis of the statement then?

24 A Well, the basis of the
25 statement is that if you put the pipeline activity
26 through the Mackenzie Valley region it produces certain
27 effects; if you put it through the Yukon it produces
28 certain effects; and it was our judgment that those
29 effects are similar, there aren't over-riding social
30 consequences or economic consequences. It doesn't make

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any assumptions about the similarity of the two regions.

Q I see. But you have admitted that there would be some substantial net advantage to having the pipeline go through an area where the infra-structure was relatively well developed.

A No sir, I didn't say that. I agreed with your statement that there -- that a more mature region can more readily absorb the impacts generated by a pipeline. I didn't say that it resulted in a net substantial advantage.

MR. VEALE: I have no further questions, Mr. Commissioner.

THE COMMISSIONER: Well, we'll

--

MR. GOUDGE: Sir, I notice it's five o'clock.

THE COMMISSIONER: O.K. All right, we'll adjourn until eight, and you realize that if there are local people that wish to speak at eight, we'll have to just let them go first and then carry on with this panel.

(PROCEEDINGS ADJOURNED TO 8 P.M.)

(PROCEEDINGS RESUMED PURSUANT TO ADJOURNMENT)

THE COMMISSIONER: I think, Mr. Marshall, we'll ask your panel to come up here again and I think we'll ask you, Mr. Goudge, to tell us who is supposed to be asking the questions now.

MR. GOUDGE: Well, sir, if there is no one else who wants to say anything to you, we can perhaps return to the panel being cross-examined.

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Cross-Exam by Templeton

1 I think the next lawyer on the list was Mr. Templeton,
2 representing the Environmental Protection Board, and
3 he would in the ordinary course be asking them questions.
4 I assume if anybody in the audience does want to say
5 anything further to you, they can let Mr. Waddell know.
6

7 THE COMMISSIONER: Yes. If
8 any of you decide you would like to say something to
9 me, Mr. Waddell, who is very neatly turned out in that
10 safari outfit, he will take your name and bring it to
11 my attention and we'll cut the proceedings -- we'll
12 interrupt the proceedings to hear from you.

13 So you will understand what
14 is happening now, this is what we call a formal hearing,
15 and these gentlemen on my left are a group of distin-
16 guished engineers and environmentalists who are con-
17 sultants to Arctic Gas, and they are being questioned
18 by lawyers for the other participants. Mr. Gibbs, who
19 is the lawyer for Foothills, questioned them yesterday,
20 and again today. Mr. Anthony, who represents the
21 Canadian Arctic Resources Committee, cross-examined
22 them, and Mr. Templeton is going to cross-examine them
23 now. I should say, so that Mr. Templeton's reputation
24 doesn't suffer, that he's not a lawyer. He's an
25 engineer who represents a private group of scientists
26 called the Environment Protection Board, and he has
27 been taking part in our Inquiry.

28 Would you like just to be
29 seated and question the gentlemen from there, Mr.
30 Templeton?

MR. TEMPLETON: Thank you very

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Cross-Exam by Templeton

1 much. My bifocals won't stand talking standing up and
2 reading at the same time.
3

4
5 CROSS-EXAMINATION BY MR. TEMPLETON:

6 Q The first question I have
7 is to Mr. Dau regarding timing of when the interior and
8 coastal routes were chosen. You made these -- what
9 year were the coastal and interior routes chosen, Mr.
10 Dau?

11 A In their final form, as
12 filed, it would be about two years ago, a little over
13 two years ago as finally filed; but the general -- in
14 the general sense they were investigated much earlier
15 than that. I believe my first trip over the coastal
16 route was in 1969, I think, and I'm not sure of the
17 first trip I made over the interior route. I believe
18 it was probably in '70.

19 Q So in general, the
20 general locations were mapped out in '69 or '70?

21 A Yes sir.

22 Q And when were the studies
23 made on the other routes, not the coastal or interior?

24 A The alternate corridors?

25 Q Yes.

26 A '73, I believe.

27 Q Well, did the studies on
28 the other routes, the other corridors other than the
29 coastal and interior, include environmental studies?

30 A Yes, but not to the --

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1 my understanding is not to the degree on the coastal
2 and interior, and Mr. Hemstock could respond to this
3 better than I can.

4 Q Well, perhaps you would,
5 Mr. Hemstock? Did you do environmental studies on
6 the other routes besides the coastal and interior?

7 WITNESS HEMSTOCK: We did
8 literature studies of the other routes, but no field
9 work other than the field work which might be over-
10 lapping on those routes at the Prudhoe Bay end, and
11 I guess it would be only the Prudhoe Bay end, and to
12 confirm Mr. Dau's dates on the timing, the reports that
13 we have are dated in about mid-1973, to summarize the
14 environmental opinions of our consultants on the
15 alternative routes.

16 Q But then would it not be
17 fair to say that when you selected the two prime
18 routes, or the prime route which goes along the coast
19 between Prudhoe Bay and the Mackenzie Delta, and the
20 interior route which goes near the Porcupine and
21 over to the Mackenzie Delta, that you did not have
22 the environmental studies performed at that time?

23 A We did not have the
24 environmental studies performed on the Yukon and
25 Fairbanks corridors at the time that the initial
26 selection was made of the prime route and the interior
27 route, that's correct.

28 Q So you didn't have the
29 environmental studies on the prime route or the
30 interior route either at that time, because that was

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1 in 1969, and you said the studies were in '73.

2 A The studies of the
3 alternative corridors, the Yukon and Fairbanks corridors,
4 the reports are dated 1973. The other environmental
5 studies were undertaken, and again I would have to
6 refer to Mr. Dau on this, but my understanding is that
7 they began in 1970-71.

8 WITNESS DAU: That's correct.

9 Q But such studies as bird
10 nesting and staging areas for birds, caribou calving
11 grounds, caribou migration routes, over-wintering areas
12 for fish, came after the initial two routes were laid
13 out, one the Northwest Project Group along the coast
14 and the other the Gas Arctic one through the interior.
15 Is that not right?

16 A Yes, but you must under-
17 stand that they would be -- at least in my view -
18 classified as the preliminary route selection at that
19 time. The routes have changed as time went on. The
20 route that is now filed is not the route that was
21 looked at, the precise route that was looked at in
22 1969 or 1970, for instance. It is in the general sense,
23 yes.

24 Q Yes, I think we're in
25 agreement. We're talking in a general sense. I realize
26 that you have modified it and made changes due to
27 environmental and social and other considerations, but
28 the two general routes were really chosen before the
29 environmental studies were done.

30 A Yes, that's correct.

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1
2 Q Well, I wonder if we
3 could then discuss the criteria that were used to select
4 these routes, or eventually the two routes first and
5 eventually the prime route. I think I'm having a
6 little difficulty trying to explain how this can be
7 done because your criteria is not, I don't believe,
8 shown in your exhibits; but to start with, I think the
9 terms of reference for these hearings is that Mr.
10 Justice Berger is to have regard to the social,
11 environmental and economic impact in the Northwest
12 Territories and Yukon and so I suggest that since these
13 are the terms of reference of this Inquiry that these
14 should be criteria, and then I assume also that you
15 will want to include other criteria as well, and I,
16 for the sake of a better term, I might call these
17 pipeline economic criteria, and include in this
18 group things like capital cost, integrity of the
19 pipeline, operation and maintenance, and location of
20 future reserves, and I don't know whether I would
21 call these pipeline economic criteria as separate
22 from the other two. The other is socio-economic and
23 environmental. I don't know whether there are
24 other groups, I don't want to get into all the details
25 of criteria, but are there other groups of criteria
26 that might be used in choosing a route?

27 A No, your general classi-
28 fication of pipeline criteria, obviously it goes back
29 to economics and construction, and the ideal situation
30 of course, is the shortest distance between two points,
ignoring others. One that you did not mention was

Dau, O'Rourke, Williams, Clark,
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1 the proximity of the pipeline to other known or probable
2 future sources of supply of natural gas.

3
4 Q Well, I think I called that
5 location of future reserves. Perhaps I didn't speak
6 loudly enough.

7 A That's the general list
8 we have, sir, yes.

9 Q Well, assuming then that
10 you have these three major groups of criteria, there
11 are a number of components in each one but assuming
12 that you have these three major ones -- pipeline
13 economics, environmental, and socio-economic, how did
14 you weigh these? Perhaps you didn't but if you could
15 in view of we not having how you did it, could -- if
16 you could think back to the time that you were making
17 this choice and how would you have weighed the relative
18 importance in selecting the prime route at that time?
19 Could you do it in a scale of say 1 to 10? I don't
20 want to get into too many details, but I can add up
21 one decimal point, but not two. In a scale of 1 to
22 10, what was the relative importance at that time of
23 pipeline economics, environmental, and socio-economic,
24 and I think we're speaking of the Territories, not
25 of Canada as a whole.

26 A I discussed this over
27 a period of several days with Mr. Scott at Yellowknife,
28 as I remember, and I think that I told him that at the
29 time we were selecting the two routes that you are
30 talking about in a general sense, which was prior to

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1 any definitive conclusions from any environmental
2 studies, obviously the pipeline group was of prime
3 importance to us in selecting routes.

4 Q Well, could you go a
5 little farther and quantify that in a scale of 1 to
6 10, what would the pipeline economics amount to? Is
7 it 10 or 8 or 7 or 2?

8 A Well, in the initial
9 go-around, the initial reconnaissance it was obviously
10 very close to the top priority of 10, if that's your
11 top priority.

12 Q O.K.

13 A Because we had no other
14 information at that time.

15 Q I see.

16 A The source of supply at
17 Prudhoe at that time was known, which is essentially
18 a dot on a small-scale map at that time. At that
19 time we had a market area to be served. The procedure
20 was to connect those two points, in essentially a
21 straight line, then to look at the map -- and maps
22 only -- to make sure that we missed the obviously
23 features that we wanted to miss -- large lakes or
24 mountain ranges and so forth. Once the map study was
25 complete, the next stage was a reconnaissance by
26 aircraft. While we were doing that we gathered all
27 of the information, published information that we could
28 find about the entire area that was under considera-
29 tion. Shortly after reconnaissance we retained con-
30 sultants as far as Northern Engineering is concerned,

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1 we retained consultants in what I would define as
2 an environmental area. Canadian Arctic Gas or Northwest
3 Projects and Arctic Gas, or Gas Arctic prior to the
4 merger, retained the socio-economic consultants, and it
5 changes as you go along on a step by step basis. I
6 can't respond to your question by being, precisely
7 saying one is more important than another, because it
8 changed as time went on.

9
10 Q I think you did say that
11 when you made the original route, economics or the
12 economic factors including the safety of the pipeline
13 and all this sort of thing was prime, was the prime
14 consideration that you had.

15 A That's correct, you have
16 to start somewhere, and that's obviously where you
17 must start.

18 Q But supposing you were
19 to start today, with what you know, how would you
20 rate in importance the pipeline economics, the environ-
21 mental, and socio-economic? You're rating on a
22 scale of 1 to 10 the importance of the various criteria
23 in selecting a route for a pipeline.

24 A You're talking about --
25 still talking about the same two routes?

26 Q No, I think it's not the
27 routes, it's --

28 A On any route.

29 Q -- on any route.

30 A Starting out from scratch?

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Q Yes.

A On a new system.

Q Right.

A The first one is pipeline

economics because if you can reject it after the first
15 minutes of study, then there's no way it could
ever be built. You don't have to consider the others.
To give you an example, there may be a system that
somebody has proposed that's completely not feasible
from an economic viewpoint, a small pipeline across
five or ten ranges of mountains where the cost would
make it completely uneconomic, it would never be
built. That would be your first consideration.

Q Well yes, but I think
you're perhaps going a little far when you say you're
going over the top of a mountain, because you have
obviously a number of routes now and supposing you
took those routes that you have available to you today
with the knowledge you have of the socio-economic,
environmental and the pipeline economics, how would
you rate in a scale of 1 to 10 the importance of
these criteria?

A I couldn't rate them,
sir. It's not an individual that rates them. It
has to be a team effort from the environmental con-
sultants, the socio-economic consultants, the engineer-
ing groups, and obviously reporting to a client who
has to make a final decision. I can make recommendations
to Arctic Gas with respect to engineering matters,
and economic matters with respect to costs, capital and

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1
2 operating, but I'm quite sure Arctic Gas will not con-
3 sider my recommendations with respect to socio-economic
4 matters very seriously. It would have to be somebody
5 else, that is a joint team effort in essentially what
6 becomes trade-offs and so forth.

7 Q Yes, I don't dispute that.
8 I don't expect you to have all of that information,
9 but you do have all of this technology available to
10 you and have hired it, and this has been done, has it
11 not?

12 A No, Northern Engineering
13 has retained some environmental consultants and also
14 Arctic Gas has retained some environmental consultants.
15 Northern has not retained socio-economic consultants.

16 Q I see. You would re-
17 frain from putting an evaluation on socio-economics.
18 Would you on the -- or perhaps I could ask Mr. Hemstock
19 because he's the client, is he?

20 WITNESS HEMSTOCK: Again, I
21 don't think that I can answer the question either, Mr.
22 Templeton. My first impression, and I've been think-
23 ing about it here, is that I would start off and give
24 them all five, and --

25 Q That adds up to 15, I
26 think.

27 A -- and go from there.
28 But there are so many factors involved that I just
29 don't think you can simplify it to a 1 to 10 type of
30 an analyses; and to perhaps illustrate the point, Mr.
Dau has indicated the importance of economics, and how

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1 it could rule out the feasibility of a pipeline in the
2 very first instance. If you went to the other end of
3 the scale it might be that the situation was such that
4 economics -- in other words there was a big cushion
5 there and economics were not that important; and the
6 same thing might be considered with regard to the
7 environment. It depends on the amount of the environ-
8 mental impact that you anticipate, how important you're
9 going to rate it in the overall assessment of the
10 pipeline. That gets me to a point where I just don't
11 see that I can answer a question in those simple terms.
12 I think it's a matter of judgment.

13 Q Well, we're getting into
14 the point of view of everybody having formed an opinion
15 on routes and a number of other things, and it's very
16 difficult for an outsider to be able to judge on how
17 -- on what criteria he made his judgment. In other
18 words, if you were a person living along the -- in a
19 village along the pipeline route and you had teenage
20 children you were concerned about, you might well put
21 socio-economic at a scale of 10; whereas if you were
22 a person selling pipe in Welland, Ontario, you would
23 put the economics No. 1, wouldn't you? The big problem
24 that I'm having is how do you -- how do all the people
25 making judgments, what are the criteria they used in
26 making that judgment, and I really haven't been able
27 to figure that out from the exhibits.

28 So I was trying to do it, and
29 I recognize it's difficult in a hearing to go through
30 some kind of a matrix with some main groups and a bunch

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of smaller groups

but I don't know any other way of doing it. How do you
tell me what criteria you have used in selecting the
prime route?

A I think Mr. Dau has told
you the criteria that he used. He started off with
the economic and simply joined two points on a map and
went from there. After you have gone that far, then
you have outlined an area or a region that you can dig
in to study the other factors. I think it's unreasonable
to think that you might start with, say, an environmental
study of the Canadian Arctic to find where a pipeline
might be built without considering where the resource
was or where the market was. So that his first step
is to bring this down to a workable area that can be
handled in terms of study. We have outlined in Section
14-D the criteria that we used to evaluate the environ-
mental impact, and I don't have the volume in front of
me here, but they list the criteria that we used in
the impact assessment.

Q Yes, but what you're
saying is that the pipeline economics came first, and
once having decided on the route, you then look at
the socio-economic and the environmental, and see
whether they fit.

A That's correct, and in
some cases we found that again in our judgment that
the environmental impact that we anticipated from the
route we selected was too high, or could be mitigated
by a route change which had some effect on the economics.
Those changes were made and as Mr. Dau suggested, the

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1 route now is not precisely the same as the one which
2 was originally chosen. So there have been those kind
3 of modifications built in over the years and they would
4 continue, I presume, to be built in as we continue our
5 site-specific studies where we will be looking much
6 more precisely at the route itself and for instance, the
7 borrow sites and the resources that we're going to re-
8 quire along the route.

9 It seems to me that this is
10 an evolutionary process which continues right until you
11 begin construction.

12 Q Yes, I'm not talking about
13 modifications along the route at all. I think I'm talk-
14 ing about your engineering is usually -- or in the
15 past has been considered ^{that} the project should be adequate
16 and economic and I rather thought that you had progres-
17 sed beyond that to say that it's adequate, economic
18 and environmentally and socially sound.

19 A That's what we say,
20 it's environmentally acceptable and socially acceptable.

21 Q But the social and
22 environmental are after you've chosen the route.

23 A That's correct.

24 Q Well, in trying to evaluate
25 the alternative routes that you have, or corridors
26 as you call them, can you agree with the -- that the
27 criteria would be the location of future reserves,
28 the integrity of the pipeline, the operation, the
29 maintenance, the capital costs?

30 A I think that Mr. Dau

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1 agreed with that.

2 Q Yes.

3 A And I agree with it.

4 Q You do too, Mr. Hemstock?

5 A Yes.

6 Q I'm trying to get some
7 kind of a feeling from you as to what's most important
8 in that sub-group of criteria, but it's very important
9 because I don't know how unless you evaluate those, how
10 you can come to any prime route if you don't evaluate
11 the criteria that are going into the selection of a
12 route, how do you choose a route? I was hoping that
13 you would put some kind of a rating on those four
14 factors too. Mr. Hemstock?

15 A No, I'm afraid I can't
16 put any rating on those factors. I think as Mr. Dau
17 suggested, it has to be a joint decision where you
18 sit together round a table with people who are involved
19 in each of the disciplines and come up with your best
20 conclusion. I find -- it seems to me that the attempt
21 to rate these things from 1 to 10 is an over-simpli-
22 fication and it, at least at the stage of our develop-
23 ment, it just can't be done. Perhaps it can be done
24 but I feel I wouldn't have much confidence in the
25 answer that you got out.

26 Q Well, to go onto an
27 example then, I think Mr. Dau mentioned that in the
28 evaluation of alternate routes the location of future
29 reserves is very important. I think you volunteered
30 that, Mr. Dau.

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WITNESS DAU: Yes.

Q Now, supposing the future
reserves in the Mackenzie or Beaufort Sea were to the
east of Richards Island.

A Yes.

Q Would this affect your
route?

A The question is that --

Q Would you still use the
coastal route?

THE COMMISSIONER: Do you mind
repeating that question? I'm not sure I got it. If the
reserves in the Beaufort Sea were east of Richards
Island ?

MR. TEMPLETON: Well, to the
east, perhaps east of the delta lateral, you have a
lateral running north to pick up the gas in the delta.
Now supposing all the reserves were to the east of
that --

THE COMMISSIONER: Yes.

MR. TEMPLETON: -- does that
affect the prime route from Prudhoe Bay to the delta?

A I'm not sure I still
understand. Let me see if I can give you what my
understanding of your question is. You're saying that
'from the best advice we can get and so on, that we
concluded that there are no gas reserves in the Mac-
kenzie Delta at all, and that the potential reserves
are north-east -- east or north-east of Richards Island.
Is that correct?

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1
2 Q There are no reserves
3 west of there.

4 A Until you get to Prudhoe
5 Bay?

6 Q Yes.

7 A Until you get to Prudhoe
8 Bay.

9 Q Right.

10 A And presumably the re-
11 serves east are at Tuktoyaktuk or somewhere like that.

12 Q Somewhere east of there.

13 A Yes, in my view you
14 would use the same route across the North Slope and
15 you would move the lateral that now goes from Travail-
16 ant Lake junction up to Richards Island, would spring
off in an arc to go to those new reserves.

17 Q But the evaluation of
18 the interior route would probably go up in the process,
19 wouldn't it? I mean, supposing for some reason or
20 other you couldn't get across the Wildlife Range, and
21 you decided on the interior route. Your problems would
22 be considerably less then because your reasoning, I
23 think, in your exhibits is that you want the coastal
24 route so that if you have future reserves, and there
25 is a possibility of future reserves along the coast,
26 towards Alaska, that you could pick them up with very
27 short laterals.

28 A Yes, yes.

29 Q But if you didn't have
30 any you would therefore -- it would be more favorable

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1
2 to the interior route.

3 THE COMMISSIONER: Is that so,
4 Mr. Dau, or would the fact that the interior route, as
5 we are told, 500 million cheaper, still govern --
6 500 million more expensive still exclude it?

7 A Yes, on that basis, the
8 engineering and cost criteria would still favor the
9 coastal route.

10 MR. TEMPLETON: Q Well, I
11 wonder if Mr. Hemstock could, with his many years of
12 -- with Imperial Oil, who is the chief operator in
13 the, one of the chief operators in the delta, couldn't
14 throw some light on this, because I think it does make
15 a difference in how you evaluate the coastal route
16 versus the interior route.

17 MR. MARSHALL: If I may
18 steal the honorary counsel's microphone for a moment.
19 I do think it's a bit unfair to Mr. Hemstock to put
20 him in the position of speaking on behalf of Imperial
21 Oil. Mr. Hemstock, while he has been an employee of
22 Imperial Oil, has for a couple of years now been on
23 permanent loan to Canadian Arctic Gas and he's really
24 not involved with Imperial at all. He does have broad
25 basic experience, there's no question about that, Mr.
26 Templeton, but I just wanted to make it clear as to
27 what his position really was.

28 WITNESS HEMSTOCK: Well, with
29 that clarification I might point out too, that my
30 work with Imperial never involved me in the analyses

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1 of reservoirs or reservoir engineering or exploration,
2 so that really in this area it's simply based on my
3 experience, I guess, and perhaps what I read in the
4 paper. But my approach to this problem that you and
5 Mr. Dau have been discussing here is that we should
6 talk to the geologists who are best informed on where
7 the greatest potential lies, and this has been done
8 by the Geological Survey of Canada, it's been done by
9 the Association of Petroleum Geologists of Canada,
10 and they provided a rating or a potential that they
11 anticipate will be found in these basins. To give
12 you a source of this document, it's in Volume I of
13 the D.O.I., it's also in several Canadian publications,
14 and I believe it's in ours but I can't point it out
15 at the moment; and taking those ratings, then again we
16 have to give some weight to those areas which they
17 anticipate will have the greatest potential.

18 Your judgment has to be based
19 on the timing that that potential will be, in which
20 that potential will be developed. Again I find it
21 very difficult to determine where, on a scale
22 of say 1 to 10, you would put that in a valuation of
23 a routing. But I think that from an environmental
24 standpoint and from an economic standpoint you should
25 insofar as you possibly can try and cut down the number
26 of miles of pipeline which would eventually be required,
27 and anticipate in the best way you can where those
28 developments are going to take place so that you can
29 service them with facilities which are already instal-
30 led. It may be that in time of development, or at

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1 the time of development required for some of the offshore
2 reserves or potential which are in 150 to 600 feet of
3 water, and which are covered with ice for eight to 12
4 months of the year, the time of development of those
5 reserves is going to be quite long and it may well
6 be that this pipeline will be still serving that
7 development perhaps three to five decades from now.

8 All these factors are simply
9 a part of the judgment then that the professional has
10 to put into his assessment of how and where the
11 pipeline should be built, and again it seems to me a
12 very complex problem and one that I certainly can't
13 evaluate again on your scale that you're suggesting.

14 Q Well, you see, the
15 problem comes up because there are environmentalists
16 who would say that the interior route or some modifica-
17 tion of it would be a better route than the coastal
18 route, and they say with the criteria that I use I
19 don't really care about the economic considerations
20 of the pipeline. They put a different valuation than
21 you do, and this is where the problem that I have in
22 trying to put all these things together, and to me
23 the location of future reserves -- and I really looked
24 for that in your exhibits and it wasn't easy, I got
25 general statements but I didn't get a sort of report
26 that I could live with -- so that if there aren't re-
27 serves to the west of Richards Island then I want to
28 take another hard look at some modification perhaps
29 of the interior route as being the one that I would
30 support more than the coastal route.

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1
2 A Now, our information
3 is that that is not so, that the ratings of geologists
4 from both the G.S.C. and the profession are that the
5 Beaufort Basin is rated very highly, and that of course
6 extends considerably west of the delta, and also to the
7 east of the delta, and --

8 Q But if there are reserves,
9 potential reserves to the west of the delta, then you
10 can make a very good case, environmentally, for your
11 prime route; but if you can't make that -- and I wasn't,
12 perhaps I looked at the wrong place but I really wasn't
13 that convinced that you had made your case. Now maybe
14 you have a lot more background and can read out of
15 that a lot more than I can. You're reading now, I
16 believe, the Department of Interior of the U.S., and
17 that's, as you have mentioned earlier, in 17 volumes
18 and I haven't gone through them all yet.

19 A If you would like a
20 reference, it's on page 3-400 and 401 and 402, table
21 2.1, .2, .3, .1, and the title is:

22 "Attributes of sedimentary
23 basins or provinces related to the Canadian
24 Gas Line routes."
25 in Volume I of 3, Canada, and it's Part III,
26 "Draft environmental impact statement."

27 The reference is to Mr.
28 Rutkin, who has made these studies for Canada.

29 Q I'll read the Department
30 of Interior's Report.

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THE COMMISSIONER: Is it on
the basis of that reference that you just gave us that
you take the view -- and you don't hold yourself out
as a leading figure in this field -- that the likely
source of gas and oil in the future will be the Beau-
fort Basin rather than the Eagle Plain or the Richardson
Mountains? Is that why you would say that the coastal
route is to be favored over the interior route, on the
basis of access to future reserves?

A Yes, and just to clarify,
we used the same basic information and the potential
ultimate recoverable gas in trillions of cubic
feet for the Mackenzie coastal margin, which is the
basin or province we're talking about, they have
shown here 64 trillion cubic feet, and 8 billion barrels
of oil with identified or I think perhaps another
word for that is proven gas reserves of seven trillion
cubic feet, and the reference there is to the "Oil &
Gas Journal" and Mr. Rutkin, his estimate for that same
in 1974 is 15 trillion cubic feet, and the Eagle --

THE COMMISSIONER: Excuse me,
let me just try to keep up with you. They say:

"Present proven reserves in the Mackenzie Delta
-Beaufort Basin, 7 trillion cubic feet."

64 trillion is described in what fashion?

A Potential ultimate
recoverable.

Q All right now, that same
question, I think, was put to Mr. Blair, the President

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1 of Foothills at Norman Wells on Saturday night just
2 about this time, as I recall, and he wasn't speaking
3 with the benefit of these volumes by his side, but he
4 put the figure at 40 trillion cubic feet ultimate
5 potential recoverable gas. Now then, the 15 trillion,
6 is that somebody's estimate of present proven reserves,
7 or ultimate recoverable?

8 A That's another estimate
9 of the identified gas in that area.

10 Q Present, what you would
11 describe as present proven reserves?

12 A It's proven probable, I
13 believe.

14 Q Yes, all right.

15 A And there is a parlance
16 belonging to the geologists on that. I might go on
17 to say that the Eagle Plains create on here have
18 shown a potential ultimate recoverable gas -- if
19 I'm reading this correctly, of 5.3.

20 Q 5.3?

21 A Trillion cubic feet.

22 Q Potential ultimate
23 recoverable?

24 A Versus the 64 which was
25 for the delta.

26 Q And what was the 5.3,
27 where was that?

28 A Eagle Plains.

29 Q Eagle Plains; but there
30 is no basis for saying there are any proven or probable

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Templeton

1 or proven probable reserves in the Eagle Plain now, is
2 that so?

3 A That's correct. They have
4 shown nil for identified gas in that area.

5 THE COMMISSIONER: Well, it's
6 better than playing with figures from 1 to 10, isn't
7 it?

8 MR. TEMPLETON: I could add up
9 1 to 10, I was having some difficulty with your
10 figures, Mr. Commissioner.

11 THE COMMISSIONER: I think, Mr.
12 Templeton, we might stop for ten minutes or so and
13 have a cup of coffee, and the members of the public
14 are certainly entitled to line up for coffee here as
15 well, and we'll start again in ten or 15 minutes.

16 MR. GOUDGE: Perhaps if there
17 is anybody who has come in recently and didn't hear
18 what was said before, we could let them know that if
19 any of them do wish to say anything to the Commissioner
20 they are most welcome to say so. They could perhaps
21 during coffee speak to Mr. Waddell, who is just walking
22 down the far side of the room.

23 THE COMMISSIONER: Thank you.

24 (PROCEEDINGS ADJOURNED FOR 15 MINUTES)

25 (PROCEEDINGS RESUMED AT 9:55 P.M.)

26 MR. TEMPLETON: Q Mr. Hemstock,
27 I wonder how confident are you that you can get a
28 permit to cross the Wildlife Range in Alaska?

29 A On a scale of 1 to 10?

30 (LAUGHTER)

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Templeton

1
2 Q I would like you to guess
3 one to ten once.

4 A We believe that the
5 pipeline can be built across the Wildlife Range without
6 seriously impacting the purposes for which the range
7 was set aside, and we've discussed this in hearings
8 in Washington, and I'm fairly confident that we can
9 get permission to cross the range with the gas pipeline.
10 I should point out, though, that this is an Alaskan,
11 a U.S. concern, and it is being handled in the detail
12 by our people in Alaska. We have a director of
13 environmental studies there and he would be able to
14 answer it much better than I.

15 Q Well, that's right.
16 It's going to be settled in Alaska, not Canada, but
17 the implications of the decision is certainly going
18 to affect the environment in Canada because it will
19 affect what route you're going to take.

20 A That's correct.

21 Q And it could well throw
22 routes -- you could make the other corridors in addition
23 to the inland, interior route, possibly more attractive.

24 A Obviously there is very
25 much hinges on the decision of the U.S. agencies about
26 crossing the Wildlife Range.

27 Q One of the things that
28 is bothering me is supposing you decide to use another
29 route, either the interior route or go down the
30 Alaska Highway, perhaps because of the decision in
Alaska, what are your -- how are you going to pick up

Day, O'Rourke, Williams, Clark
Hemstock, Banfield, Trusty
Cross-Exam by Templeton

1 these other reserves -- the reserves that haven't
2 been discovered yet because there are certainly some
3 really serious environmental concerns in doing so.

4 A Well, our second alterna-
5 tive is the interior route, and that route avoids the
6 Wildlife Range, and goes through a corridor which was
7 set aside for -- as a transportation corridor.

8 You are correct that it would
9 make a much longer lateral in order to pick up reserves
10 that had been found, that may be found off -- in the
11 Beaufort Sea north of the Wildlife Range. However, you
12 would still be able to pick up reserves on the offshore
13 of Alaska between Prudhoe Bay and west of there, and
14 east from Prudhoe Bay to the Wildlife Range, and in
15 Canada if there were reserves found offshore, you would
16 be able to pick those up by laterals which would feed
17 into, probably into the Mackenzie Delta lateral that
18 we have proposed. So that I see that what it does is
19 make it much more difficult picking up potential
20 reserves offshore of the Wildlife Range, and it would
21 mean that you would have to pick them up with some
22 sort of a lateral line which circumvented that range.

23 Q So what you're saying
24 then, though, is that you have an interior route with
25 the environmental implications on it, and you also
26 really have a coastal route as well, so you have the
27 two of them.

28 A That's why we recommend
29 the coastal route, at least it's one of the reasons
30 we recommend the coastal route.

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Cross-Exam by Templeton

1 Q Yes, but the implications
2 of that are quite serious from an environmental point
3 of view.

4 A Could you clarify that?
5 What implications are you speaking about?

6 Q Well, you have the
7 environmental implications of the interior route, and
8 you have the environmental implications of the coastal
9 route as well.

10 A That's correct. However,
11 again we should point out that we have applied simply
12 for the pipeline which will run from Prudhoe Bay and
13 from the delta. When other reserves are discovered
14 and other lateral lines are required, they have to be
15 assessed both environmentally, economically, from an
16 engineering standpoint at that time, and we can simply
17 take those into consideration as best we can at this
18 stage.

19 Q Yes, from an environmen-
20 talist's point of view he's somewhat worried because
21 although this proposed pipeline is subjected to public
22 hearings and publishing of an impact assessment, many
23 other things are not, such as the drilling in the
24 Beaufort Sea and corridors, highways and so on. So
25 you can see that environmentalists are quite concerned.
26 Well, just to investigate a little bit more, in the
27 interior route in case you have to go to that one,
28 have you investigated a line going from the Mackenzie
29 along the Dempster Highway until you get through to
30 Richardson Mountains and then westerly south of the

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Templeton

1 Porcupine, and thereby keeping away from Old Crow and
2 the problems there?.

3
4 A I believe Mr. Williams has
5 some comments on that. I'm trying to recollect the
6 map of that area. It would seem to me that that would
7 not fit the corridor which has been set aside in
8 Alaska, and one of our concerns is that the pipeline
9 somewhere has to meet on the border. We can't have
10 a pipeline running north and south to make junction
11 on the boundary.

12 Q Is that on a scale of
13 1 to 10?

14 A Perhaps Mr. Williams
15 can comment on the earlier study.

16 WITNESS WILLIAMS: Yes, Mr.
17 Templeton, we look_ed at the maps you supplied, your
18 group supplied to us shortly after the April 13, 1972
19 meeting, and made an evaluation as to length, and found
20 that it was about 23 miles longer than the interior
21 route that was proposed, and from a cursory examination
22 we couldn't really understand the benefit that would
23 accrue that would overcome that extra cost of another
24 23 miles, and that's about as far as the study went.

25 Q But if the social impli-
26 cations are too great to go north of Old Crow, it this
27 still a possibility?

28 A Certainly, if these mat-
29 ters can be firmly established that that is undesir-
30 able or not acceptable, then other routes would have

Dau, O'Rourke, Williams, Clark,
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Cross-Exam by Templeton

1 to be examined.

2 Q Back to Mr. Hemstock,
3 with regard to the corridors, your discussion in your
4 prepared evidence regarding corridors you differentiate
5 between a gas pipeline corridor and a transportation
6 corridor across from the Mackenzie Delta westerly to
7 the Alaskan border. Do I interpret this to mean that
8 you're not in favor of a transportation corridor across
9 either the coastal or the interior routes? I'm talk-
10 ing now about the transportation corridor mentioned in
11 the guidelines of the Federal Government, pipeline
12 guidelines.

13 WITNESS HEMSTOCK: We have not
14 addressed ourselves to details of what impacts there
15 might be with other transportation modes across there,
16 but it is my clear impression from discussion with
17 our environmental consultants that they would all be
18 greatly concerned with the construction of say a
19 highway across the coastal plain, and certainly if
20 there were to be another transportation mode proposed
21 I would think it would require a further, much further
22 study of the impact of that particular mode.

23 We addressed ourselves simply
24 to the construction of a gas pipeline across there,
25 and based our conclusions on that.

26 Q I have one other small
27 housekeeping job with Dr. Banfield, and then I will
28 retire. I believe, Dr. Banfield, you said that on
29 a question from Mr. Veale that you -- that Dr. Calef
30 had suggested that the interior route was better

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Templeton

1 from a caribou study than the coastal route, and that
2 I think Mr. Veale asked you about that, and you said,
3 "Well, further studies which had been done later
4 were sort of made the Calef conclusions out-dated,"
5 that wasn't your words but something to that effect.
6 Is that about right?

7 WITNESS BANFIELD: I don't
8 know what you want me to say, sir.

9 Q I don't want to get
10 into a discussion of a technical nature because I
11 can't discuss all that, but my understanding of Dr.
12 Calef's conclusion that he would prefer from a caribou
13 point of view, or he would prefer, having studied
14 caribou, if from these -- his reasoning was that if
15 the interior route, that the caribou migration crossed
16 it for a very short period of time in the spring when
17 they were going towards the calving grounds, and in the
18 fall when they were wandering back, and that you could,
19 he felt, close the operation down at that -- for that
20 short period of time without any significant problem
21 to the pipeline company, but when it got to the
22 coastal route, the operation was in parallel along
23 the coast -- in other words, ^{the caribou} rush, this headlong rush
24 to get to the calving grounds by the 1st of June and
25 then they have their calves and they -- and this is
26 at a very critical time in their life cycle, and then
27 they go through this post-calving aggregation along
28 the coast and that goes on until probably the end of
29 July, and that his concern, as I remember it, in his
30 report was that you were going to inter-act on the

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Cross-Exam by Templeton

1 coastal route for two or three months, a couple of
2 months anyway, where as if you were on the interior
3 route you would only inter-act with them for a very
4 short period of time, and I don't -- I haven't seen any
5 studies that you've done that would get over that
6 concern of Dr. Calef's.

7 A Well, since you've raised
8 the subject so directly, I can only respond by saying
9 that I have a major disagreement with that analysis,
10 and --

11 Q Well, I'm not disputing
12 the fact that there could well be differences of
13 opinion. That isn't the question. I'm wondering, are
14 there studies that would indicate, that have been made
15 since then that would indicate that we could analyze
16 that?

17 A When Dr. Calef presented
18 his views and several other consultants did not agree
19 with him, it was obviously necessary to seriously
20 review and consider his views and the basis which
21 you've well described, and on reviewing not only our
22 own documentation but reviewing the government, the
23 Federal Government documentation and indeed review-
24 ing the E.P.B. documentation, it was quite apparent
25 that the caribou were almost consistently around the
26 interior route. The documentation, I'm trying to find
27 excerpts from it, that is a major wintering area of
28 the Porcupine caribou herd, and that is becoming
29 increasingly more used in the last couple of years.
30 This is the information I was referring to that later

Dau, O'Rourke, Williams, Clark,
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1 information has indicated that the caribou have
2 remained in the Richardson Mountains and in that
3 area closely associated with the interior route east
4 of Old Crow. The analysis that he made, it's not
5 a short crossing of the route twice a year. During
6 the mid-summer, they retreat after the aggregation the
7 caribou quite often re-trace their steps right back to
8 what would be the location of the interior route, and
9 they then turn westward and parallel the very route
10 of the interior route back across the Old Crow Flats
11 and back turning generally north-westward, re-tracing
12 their steps quite often to almost the Alaskan boundary.
13 So very opposite from his viewpoint, we concluded that
14 the only time there would not be caribou around that
15 would be during the fawning period when they were
16 up in proximity to the prime route which we have
17 chosen.

18 THE COMMISSIONER: Well, is
19 the source of your disagreement with Dr. Calef this,
20 you're not arguing with him that they calve on the
21 coast; everybody agrees with that. You're arguing
22 about the extent of time they remain on the coast when
23 they're calving and when they're aggregating before
24 returning to the mountains, isn't it, and I take it
25 you're also arguing with him about the extent to which
26 they gather in the Richardson Mountains in the vicinity
27 of the crossing of the mountains by the pipeline. Is
28 that fair?

29 A Yes sir, except that
30 we even have greater agreement, there is no difference

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Templeton

1 in opinion in the time they spend in the vicinity of
2 the prime route, or on the coast during the --

3 Q Oh, so the only disagree-
4 ment then, you agree that they spend 2 1/2 months or
5 something like that on the coast during the calving
6 and post-calving season, but they spend -- they gather
7 for a longer period of time during the year in the
8 vicinity of the McDougall Pass and that part of the
9 Richardson Mountains than Dr. Calef thinks they do.

10 A Yes. Their movements are
11 quite erratic in that general area, and it's as you
12 probably know, sir, their movements are rather unpre-
13 dictable and in the early years of our investigations
14 their winter ranges were well south into the Northern
15 Slopes of the Ogilvie Mountains, and that was the
16 time when Dr. Calef was most active during his resear-
17 chs. He has not been active in later years, partic-
18 ularly last winter, and even the winter before the
19 caribou did not go as far south and they spent a great
20 deal of time milling around immediately -- well, in
21 the whole Richardson Mountain area to the west, south-
22 west of Aklavik and the Bell River and Driftwood Rivers
23 is one of their favorite spots.

24 Q The people at Fort
25 McPherson told us they were very near to the village--

26 A Yes sir.

27 Q -- this past spring.

28 A Yes sir, so that in the
29 last few years it appears that caribou are really only
30 absent from the interior route in that area during the

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Templeton

1 time in which they pass on northward during the month
2 of May and eventually reach the fawning grounds on the
3 Yukon and Alaskan coast where they start to fawn the
4 last week in May and the first week or so in June.
5

6 Q So if it were only a
7 matter of considering the welfare of the caribou,
8 isolating that consideration now, you would stand
9 four square in favor of the coastal route and you would
10 oppose squarely the interior route past Old Crow and
11 Old Crow Flats, or across the mountains and the
12 McDougall Pass.

13 A There are a lot of
14 problems involved, not only the movements, but in the
15 time of construction, the amount of summer construc-
16 tion through the mountains, the narrowness of mountain
17 valleys which deprive the animals of some manoeuver-
18 ability in circumventing compressor sites, construction,
19 that sort of thing. There is one particular compres-
20 sor -- compression station on the Alaska side that
21 in fact usurps the whole floor of the valley, and
22 this is on a well-marked caribou and grizzly bear
23 migration route, and Dall sheep, and to pass that
24 proposed compression station site the animals will
25 virtually have to climb the walls of the steep hills
26 or mountains on each side.

27 Q So you stand with the
28 people of Old Crow on this matter, do you?

29 A I'm sorry, sir, I'm not
30 aware of the stand of the people of Old Crow in this
31 matter.

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Hemstock, Banfield, Trusty
Cross-Exam by Templeton

1 MR. TEMPLETON: Well, I think
2 what you're really saying, you know, is perhaps we
3 have under-estimated the environmental considerations
4 for caribou because I don't think, regardless of what
5 you've said, that probably if Calef were here I doubt if
6 you would convince him, because he has this very strong
7 feeling that the activities are going to -- summer
8 activities are going to impact on the caribou. I think
9 you're quite -- you're honestly saying that you can
10 control these, and Calef is much more pessimistic about
11 what you can do. He's a scientist that's interested
12 in the study or interested in that particular aspect;
13 but I think the question that I have was that I don't
14 -- I didn't want to -- I'm not able to argue the point
15 out with you, but the summer impact along the route
16 is the main concern that he has, and I don't think
17 that has been entirely got around in future studies.
18 What you've said is that there is more problems in the
19 interior route. I don't think that you've got over
20 the problems in the coastal route, that he sees.

21 A I don't see how I can
22 really respond, Mr. Templeton. Dr. Calef is a well-
23 qualified professional man. I respect his views. Mine
24 are different.

25 MR. TEMPLETON:
26 Yes, of course. That's
27 all the questions I have, Mr. Commissioner.

28 THE COMMISSIONER: Well, I
29 realize that both Dr. Calef and you will be appearing
30 before the Inquiry in Yellowknife to discuss this
whole issue in greater detail, but you regard the

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Hemstock, Banfield, Trusty
Cross-Exam by Commissioner

problems in the interior route from the point of view
of caribou as greater problems than he looks at them.
Is that right?

A Yes sir.

Q And do you agree that
on the coast, you and he both agree as to the magnitude
of the problem? You said you agreed on the length of
time they remain there and their activities there.
I take it you agree on the extent of the problem. Is
it that you disagree on the possibility of avoiding
injury to the herd on the coast?

A We disagree in assessing
the significance of risk of probable impact.

Q On the coast?

A Yes.

Q And in the interior you
think the risk of probable impact is much greater than
he assesses it?

A Yes.

THE COMMISSIONER: Well, it
will be a very interesting confrontation when it
occurs. Yes, thank you, Mr. Templeton.

Mr. Goudge, we could carry
on this evening for another half-hour or so, but I
think everyone is a little fatigued. If you like we
could start half an hour early tomorrow, 9:30. How
much longer will cross-examination of this panel take?

MR. GOUDGE: I would think, sir,
starting at 9:30 tomorrow, we would be through in an
hour and a half, perhaps two hours.

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MACKENZIE VALLEY PIPELINE INQUIRY

IN THE MATTER OF AN APPLICATION BY CANADIAN ARCTIC
GAS PIPELINE LIMITED FOR A RIGHT-OF-WAY THAT MIGHT
BE GRANTED ACROSS CROWN LANDS WITHIN THE YUKON
TERRITORY AND THE NORTHWEST TERRITORIES FOR THE
PURPOSE OF THE PROPOSED MACKENZIE VALLEY PIPELINE

and

IN THE MATTER OF THE SOCIAL, ENVIRONMENTAL AND
ECONOMIC IMPACT REGIONALLY OF THE CONSTRUCTION,
OPERATION AND SUBSEQUENT ABANDONMENT OF THE ABOVE
PROPOSED PIPELINE

(Before the Honourable Mr. Justice Berger, Commissioner)

Whitehorse, Y.T.,

August 13, 1975.

PROCEEDINGS AT INQUIRY

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APPEARANCES:

Ian Scott, Esq., Q.C.,
S.T. Goudge, Esq., & appear for Commission;
D. Carter, Esq.,
J.J. Marshall, Esq., appears for Canadian Arctic Gas
Pipeline Limited;
R.G. Gibbs, Esq., and
Mr. Hollingworth appear for Foothills Pipelines;
R. Veale, Esq., appears for Council of Yukon
Indians;
R. Anthony, Esq., appears for Canadian Arctic
Resources Committee;
G.W. Bell, Esq., appears for Indian & Metis
organizations of the Northwest
Territories;
J.U. Bayly, Esq., appears for Inuit Tapirisat of
the Mackenzie Delta.

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1 Whitehorse, Y.T.,

2 August 13, 1975.

3 (PROCEEDINGS RESUMED PURSUANT TO ADJOURNMENT)

4 MR. GOUDGE: I wonder if we
5 could begin this morning, since it's 9:30 or shortly
6 thereafter.

7 THE COMMISSIONER: Gentlemen,
8 we'll bring the hearing to order this morning.

9 Now, Mr. Gibbs, on behalf of
10 Foothills, has asked that Arctic Gas be directed to
11 provide the Inquiry with a comparison of the costs of
12 the alternate routes broken down into segments. It
13 appears that Arctic Gas rejected the Fairbanks corridor
14 for a number of reasons, the most important one being
15 its cost, \$8,128,600 in 1973 dollars; but it is argued
16 that the Fairbanks route and other routes should be
17 compared to the prime route, not simply on the basis
18 of the cost of the whole system to the 49th Parallel
19 but on the basis of the cost of each segment. It is
20 said that this will enable the Inquiry to examine
21 costs of the alternate routes fairly.

22 The pipeline guidelines laid
23 down by the Federal Government make it absolutely
24 plain that Arctic Gas is bound to provide
25 a comparison of their proposed route with alternative
26 pipeline routes, and I am quoting the pipeline guide-
27 lines. They say:

28 "The comparison must be in terms of environmental
29 and social factors, as well as technical and
30 cost considerations."

1 That is what the pipeline guidelines say. The order-
2 in-council passed by the Governor-General in council
3 appointing -- establishing this Inquiry says that I
4 am to have regard to the proposals that may be made
5 to meet the specific environmental and social concerns
6 set out in the pipeline guidelines.

7
8 Now, it is apparent that if
9 the Fairbanks were to be used to carry Prudhoe Bay
10 gas to U.S. markets and some other system used to
11 carry delta gas to Canadian markets, the impact of
12 those systems on the Yukon and the Northwest Territories
13 would be vastly different than the impact of the pipe-
14 line that Arctic Gas now proposes. The impact -- the
15 adverse impact might be greater, it might be less, but
16 I think that the pipeline guidelines require that we
17 consider the alternate route, though we are in no
18 position to consider it in the same measure of detail
19 as we have been seeking to bring to bear on the prime
20 route in the course of these hearings.

21
22 It seems to me that it is
23 virtually impossible under these circumstances to
24 segregate the question of cost from the questions of
25 social, economic and environmental impact that this
26 Inquiry has been established to look into. Indeed, this
27 panel, Arctic Gas in presenting this panel has raised
28 the whole question of the capital cost differences
29 between the prime route and the alternate routes, and
30 on the basis of a comparison of the cost of the systems,
31 each of them considered as a whole, has opted for the
32 prime route. I think that the matter having been

1 raised in that way, that is the matter having been
2 raised by Arctic Gas, and a set of figures having been
3 advanced attributed to each route which seek to demon-
4 strate to this Inquiry that the prime route is to be
5 preferred, that it is only fair to allow Foothills, the
6 other applicant, the opportunity of showing, if it can,
7 that those figures are misleading, that they do not
8 present a fair comparison of costs and that -- and in
9 the circumstances I am going to direct Arctic Gas to
10 provide the segmented costs that Mr. Gibbs has asked
11 for because it seems to me that if we are going to
12 allow Arctic Gas to bring in its figures to demonstrate
13 to this Inquiry that the prime route is to be preferred,
14 those figures being figures based on the cost of the
15 whole system in each instance, we must allow Foothills
16 the other applicant, to bring its own cost comparisons
17 of each route before the Inquiry. It is sought to have
18 that cost comparison made in a segmented way and it is
19 apparent that it is Arctic Gas, and only Arctic Gas,
20 that is in a position at this stage to provide those
21 segmented costs.

22
23 So I am going to allow the
24 motion and Mr. Marshall, no doubt in due course you will
25 let us know when we can expect the material to be
26 forthcoming.

27 MR. HOLLINGSWORTH: Thank you, Mr.
28 Commissioner.

29 THE COMMISSIONER: All right,
30 where are we now?

31 MR. GOUDGE: Sir, I think Mr.

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Bell

Bell, for the N.W.T. Brotherhood, is next.

PHILIP HARVEY DAU,
JOHN RICHARD O'ROURKE,
GUY LESLIE WILLIAMS,
JOHN IVOR CLARK,
RUSSELL ALEXANDER HEMSTOCK,
ALEXANDER WILLIAM F. BANFIELD,
WAYNE B. TRUSTY, resumed:

CROSS-EXAMINATION BY MR. BELL:

Q Mr. Trusty, you're the
member of the panel to whom I wish to address questions
on the social and economic impacts of the various
alternatives routes.

A I am, sir.

Q Well, I'm looking at the
witness resume that was filed by Mr. Marshall, the
other day, and I see that you have a B.A. in economics,
and an M.A. in economics. Could you tell me what
training or experience you have which you feel quali-
fied to speak as a social as opposed to the economic
impacts of the alternative routes?

A Well, in the first
instance, social and economic matters tend to be
very closely related. It's very seldom that you get
into regional analysis on a purely economic basis
without concerns for the social aspects of it as well.
I've had a great deal of experience on regional
economic analysis in Canada and in under-developed
worlds, and that invariably involves social work.

In addition, we have consult-
ants who have worked in the strictly sociological
area, and have provided input.

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Cross-Exam by Bell

Q Well, do you then have any expertise which would enable you to discuss the impact of the pipeline on the rates of alcoholism?

A I have examined data on the alcohol question, and I've read reports on it, and I've talked with our sociological consultant on it.

Q Who is that consultant?

A Dr. Hobart at the University of Alberta at Edmonton.

Q Are there any reports that you can refer us to that you are relying on?

A I don't have the list of reports here. Yes, there are reports, we could make that list available. That obviously is a Phase 4 matter and we haven't come to this hearing prepared with the detailed list of reports we're relying on for Phase 4.

Q Well, do you have any expertise which will enable you to discuss the impact of the pipeline on family breakdown?

A Again the same answer applies.

Q You're relying on consultants, are you?

A Yes, our consultant has looked at this question and has provided information which will be forthcoming in Phase 4 and we have looked at literature that was available in the area.

Q Who is that consultant?

A Dr. Hobart.

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Q And if I ask you the same
question about the prime route, is it the same answer,
it's the same consultant?

A The same consultant.

Q Do you have any expertise
or knowledge in the area of aboriginal rights?

A No sir.

Q Do you have any expertise
in the history of native people in the N.W.T. or the
Yukon?

A I have read the literature
on the history of the native people, yes. I don't have
expertise beyond that.

Q Do you rely on any reports
of consultants in this area?

A Again, the reports will
be forthcoming in Phase 4. We don't have specific
consultants that deal in that matter. Dr. Hobart has
obviously gone into that matter because he's worked in
the N.W.T. for a long time.

Q I'd like to refer to
Exhibit No. 59, which is Section 14 of the application
at tab 1.9, entitled, "Conclusions". On page 1 of
that reference there is a large paragraph in the middle
of the page, and the third and second-last sentences
I'd like to draw your attention to them. The applicant
says here:

"In fact, there is a substantial possibility
that if the Fairbanks corridor were utilized
there would later be a need to construct some

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1 or all of the northern portion of the applicant's
2 proposed prime route to connect additional gas
3 supplies. In such event, the purpose sought to
4 be served by going an alternative route in the
5 first place would then be frustrated, at least
6 in part, unless the new gas supply were to be
7 left unconnected."

8 And the following paragraph says that:

9 "These observations apply also to the Fort
10 Yukon corridor."

11 Now, if I were to suggest to
12 you, sir, that the adoption of either these alternatives
13 would permit time for the settlement of native claims
14 in the Northwest Territories, would that go at least
15 part-way to achieving the purpose sought to be served
16 by going an alternative route?

17 A I don't follow that
18 question, sir. As I read and interpret this paragraph
19 it's talking about the alternative corridors proceeding
20 in the same time frame as would be proposed for the
21 prime route, and that there would be connections to
22 lateral lines elsewhere in the Northwest Territories
23 that would be delayed, or that would come along at
24 some later date. Now presumably any alternative corri-
25 dor in the Northwest Territories or the Yukon will
26 affect some native people, so I just don't follow the
27 gist of your question.

28 Q Well, the mainline would
29 not go down the Mackenzie Valley in either of these
30 routes.

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1 A No, but it would go into
2 the Yukon.

3 Q Yes. Well, I'm just talk-
4 ing about the Mackenzie District.

5 A I see.

6 Q Well, would you say that
7 if either of these corridors were adopted it would go
8 at least part-way to serving a purpose, to be served
9 by choosing an alternative route?

10 A Sorry, I might note
11 before I respond to the question that even with the
12 alternative corridors, there is a lateral that goes
13 to the Mackenzie Delta, and that goes near Fort McPher-
14 son into the delta area, so presumably that affects
15 native peoples in the Northwest Territories -- in the
16 Mackenzie Valley region, the delta region.

17 Q Yes, I'm aware of that,
18 but it affects fewer people and would you say that the
19 impact of that would be the same as if it were going
20 down the Mackenzie Valley?

21 A No sir.

22 Q Well, are you able to
23 answer my question then?

24 A Would you rephrase it?

25 Q Wouldn't the adoption of
26 either of these alternative corridors go some way to-
27 wards achieving the purpose to be served in going an
28 alternative route?

29 A I'm sorry, sir, you'll
30 have to define for me what "purpose" is, the purpose

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1 to be served.

2 Q Well, the purpose is --
3 well, the words are mentioned here in the appli-
4 cation, I thought perhaps you could help me. Just what
5 is the purpose?

6 A Well, as I read this
7 the question really relates more to environmental con-
8 cerns, avoiding the Arctic Slope, avoiding the Wildlife
9 Range, moving a line through a more southern region
10 where there are highways and so no, the kinds of things
11 we had a great deal of discussion on yesterday and the
12 day before.

13 Q Well, what you're saying
14 to me then is in assessing the desirability of the
15 various alternatives, settlement of native claims in
16 the Northwest Territories is simply not taken into
17 account.

18 A That is correct, sir.

19 Q Thank you. In the same
20 volume of the application at tab 1.7.2, it's called:

21 "Socio-economic,"
22 at page 3 of that tab --

23 THE COMMISSIONER: What tab is
24 that again?

25 MR. BELL: It's 1.7.2, sir.
26 It's entitled:

27 "Canadian Segments,"
28 and in the first paragraph, sir, there is some discussion
29 of the socio-economic considerations associated with
30 alternative corridors, and the last sentence in that

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paragraph reads:

"Potential impacts on the traditional hunting and fishing economy have not been included in this discussion, since those impacts are covered implicitly in the environmental discussion in the sub-sections that deal with the Canadian segment of each corridor, which demonstrate that there will be no interference with such pursuits."

Mr. Trusty, do you know on what basis the applicant makes that statement?

A I think Mr. Hemstock is the better witness to respond to that question, sir.

Q Mr. Hemstock?

WITNESS HEMSTOCK: Let me start out by saying that I think the word "no interference", "no" is probably too strong in this case.

Q You would suggest the applicant amend ~~that~~ statement then?

A That there would be little interference with such pursuits. We have over the past three or four years studied quite completely the fur-bearers in particular along the Mackenzie Valley and the alternative routes into Alaska, and we believe that the construction of the pipeline will have little effect on the habitat and the life of these -- of this wildlife, and we believe that there will be little effect then on the trapping economy of the land.

If you wish, Dr. Banfield can discuss in more detail the impact of a clearing, the

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1 fact that this may change the habitat sometimes to
2 advantage, other times to perhaps a minor disadvantage,
3 and we believe that in the overall there will be little
4 effect on fur-bearers.

5 Q Can you give us an
6 example of where there would be some effect?

7 A Well, certainly there
8 would be some effect during the period of construction
9 itself when the construction crew was moving through
10 the area. We would expect that the noise and the
11 activity along the pipeline right-of-way would certainly
12 move the wildlife back from that area some distance.

13 Q Would that apply to the
14 whole route?

15 A There would be a local
16 effect as that construction was going through.

17 Q Are you amending the
18 word "no" to "little" in addition to apply to the
19 operation phase?

20 A Yes, I think that that
21 would be a fairer statement for the operation phase as
22 well.

23 Q Can you give us an example
24 there?

25 A Well, certainly one
26 example would be that compressor stations will require
27 a certain area, and that particular area would be taken
28 out of productivity for wildlife. It is a very small
29 part of the total portion, but nevertheless it is an
30 effective part.

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Q I'd like to refer to page
30 of your prepared testimony. Perhaps I'd like to
address this question to Mr. Hemstock just for the
purpose of getting it before the panel.

In the middle paragraph on that
page you say:

"Without a major new development the Mackenzie
Valley region faces a steady deterioration for
the present precarious economic and social
situation."

Can you tell me in what way the economic situation is
deteriorating in the Mackenzie Valley region?

A I'd like Mr. Trusty to
answer that.

WITNESS TRUSTY: The avail-
able evidence on the Mackenzie Valley region indicates
pretty clearly, in my view, that there has been a
lack of stability in the terms of employment opportuni-
ties. There certainly have been boom and bust effects
in the past with major developments. Industry is
scattered. There's a high unemployment rate. The
welfare statistics alone attests significantly to the
fact of the degree of lack of economic maturity, if
you like, that exists in the valley.

Q Well, how would
a pipeline alter that pattern? I mean, isn't the con-
struction period going to last for three years at the
most?

A The construction period
isn't the whole story of the pipeline, of course.

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1 It's true that the construction period itself will
2 last for only three years, or approximately three years,
3 with some continuing construction to the fifth year; but
4 the pipeline makes possible the development of the
5 entire petrol base that's there. Historically when
6 new areas have been opened up and developed, that's
7 been an on-going thing that's lasted for many, many
8 generations. Alberta, of course, is an obvious
9 example of what can happen, the kind of development
10 that can come following the initial discovery and
11 development of hydro-carbon resources.

12 Q O.K., how many people
13 will be employed on the construction phase who will
14 also later be employed when the construction phase is
15 over?

16 A I don't have all the
17 data here with me. That's a Phase 4 kind of question.
18 I don't really see how it relates to the alternative
19 corridors, Mr. Bell.

20 Q Well, I'm just following
21 up some of the points that you were making. Would
22 you care to characterize the economy of the Mackenzie
23 District as a resource extracted economy?

24 A At this point in time,
25 yes.

26 Q Well, how is the pipeline
27 going to change that?

28 A It won't change it
29 basically. Initially it will clearly have a resource
30 extracted base, but history shows us that when you get

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Hemstock, Banfield, Trusty
Cross-Exam by Bell

1 a resource-extracted base then as it develops it brings
2 with it various service functions and an infra-structure
3 is created which tends to broaden the base. I might
4 note that at the current time in the Mackenzie Valley
5 there is an imbalance that's not typical of a more or
6 less under-developed economy, the balance being the
7 heavy preponderance of government and the resource
8 extractive activities, and lesser service sector acti-
9 vities than and ^{one} might expect that that will be re-
10 gress. The government sector will fit more in the
11 proportions that are associated with a more developed
12 economy.

13 Q No, but isn't it the
14 case that unless you get into some other kind of
15 economic base, you're still tied to a resource-
16 extractive economy, aren't you?

17 A You're tied to it, but the
18 nation is tied to it in many respects.

19 Q Well, I might say,
20 so what?

21 THE COMMISSIONER: That's moving
22 the goal posts.

23 MR. BELL: That's right.

24 A There's nothing inher-
25 ently wrong with a resource-based economy, Mr. Bell,
26 at least not in my view.

27 Q Well, I don't think we're
28 talking about the morality of economies. Well, let
29 me move onto another aspect of this. You say also that
30 the social situation in the Mackenzie District is

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Cross-Exam by Bell

1 deteriorating. Could you elaborate on that, please?

2 A The items you mentioned,
3 sir, alcoholism, crime, family breakdown. Q you're saying
4 that the pipeline would alter that, would you?

5 A I wouldn't put it quite
6 that strongly. I don't think there's concrete evidence
7 it would be altered. There certainly seems to be a
8 good deal of history to suggest that it doesn't get
9 altered when you simply hold the status quo. There
10 is some evidence to suggest -- and it's recent evidence,
11 it hasn't had a long time period for full evaluation
12 to see if the trend will hold -- but that with incomes
13 and with stability and the opportunity to realize
14 expectations that these social problems don't disappear
15 certainly, but they tend to take a balance that's more
16 similar to the balance that you find in any normal
17 society. I think that one only has to look at the
18 evidence in most low income areas, in large cities,
19 other parts of the country, and you find that these
20 patterns tend to hold; and there is, as I say, some
21 evidence that this has been true in the Northwest
22 Territories as well. That again is a Phase 4 question
23 and we will be intending to address it in some detail
24 when we get to Phase 4.

25 Q Well, wouldn't you say
26 that there's a possibility that the pipeline could
27 aggravate some of these conditions?

28 A It's certainly a possi-
29 bility, yes sir.

30 Q I take it it's your

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Hemstock, Banfield, Trusty
Cross-Exam by Bell

1 view that chief benefit in the Northwest Territories
2 resulting from the pipeline would be increased employ-
3 ment. Is that correct?

4 A I would rephrase that,
5 sir. I'd say that increased employment is a vehicle
6 that leads to other benefits. The benefits I would
7 characterize more as an opportunity to fulfill expect-
8 tations, stability, the chance for an individual or
9 individuals to see where they're going and be able to
10 more properly plan their lives, if you like, or have
11 the sense that they can realize expectations.

12 Q Well, isn't it possible
13 that employment could be a disadvantage in the North-
14 west Territories?

15 A I guess that depends on
16 the individual, sir.

17 Q Well, let me just explain
18 that a little bit. Suppose the native people do not
19 take the jobs that are available from pipeline employ-
20 ment, and this results in an influx --

21 THE COMMISSIONER: On this
22 construction, you mean?

23 MR. BELL: Well, in either
24 the construction or operation, and this results in an
25 influx of white southerners. Would you not view that
26 as a disadvantage to the native people?

27 A Not necessarily, no sir.

28 Q Well, if such an influx
29 of white southerners tended to undermine the native
30 way of life and culture, would you not view that as

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Hemstock, Banfield, Trusty
Cross-Exam by Bell

1 a disadvantage?

2 A Well, clearly as one
3 adds assumptions, 'sooner or later you get to a dis-
4 advantage, and I'm happy to break it at this point and
5 say yes, that could be a disadvantage to native
6 people.

7 Q Well, why did you -- why
8 are you happy to break it there? Why didn't you mention
9 any of this in any of the material that's been filed by
10 the applicant?

11 A Well, sir, I don't go
12 with your assumption that an influx of whites will
13 necessarily tend to undermine the native way of life.

14 Q Well, have you received
15 any reports as to what the native people are saying
16 at community hearings of this Inquiry?

17 A I have, sir.

18 Q And are you aware that
19 they're saying that in their view such a development
20 would in fact undermine their way of life and culture?

21 A Yes sir, I'm aware that
22 those people who have spoken have said that.

23 Q Well, doesn't that have
24 any effect on your opinion?

25 A Yes sir, it means that
26 there are some individuals who believe that. That's
27 clearly always true --

28 Q I think it's more than
29 some individuals. I think it's the vast majority of the
30 native people in the Mackenzie District.

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Hemstock, Banfield, Trusty
Cross-Exam by Bell

1
2 A Well, I'm sorry, sir,
3 I'll accept your opinion; I haven't seen any evidence
4 to suggest whether that's true or not true.

5 THE COMMISSIONER: Well, this
6 isn't going to get us very far, is it? It's for me to
7 determine eventually what the weight is to be given to
8 the evidence offered by people in the native villages.

9 MR. BELL: Well, sir --

10 THE COMMISSIONER: I'm not
11 interested in what Mr. Trusty thinks of it or what you
12 think of it, really.

13 MR. BELL: Mr. Hemstock, Mr.
14 Templeton last night at one point was discussing the
15 relative weight which is attached to pipeline economics,
16 environmental factors, and socio-economic factors in
17 choosing a route, and I believe it was Mr. Dau who said
18 that in certain circumstances pipeline economics can
19 veto a given route, can cancel it; and I think it was
20 you who said that in certain other circumstances,
21 environmental factors could also veto a given route.
22 What I would like to know is in the selection of routes
23 can a third member of this triumvirate also have a
24 veto?

25 WITNESS HEMSTOCK: I suppose
26 that it could have that veto effect, although I can't
27 think of a situation where that would happen.

28 Q Well, suppose a large
29 majority of the people in a region through which the
30 pipeline passed were opposed to it, that wouldn't

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CrossExam by Bell

1 qualify, in your opinion, as a situation in which
2 socio-economic factors would veto a route?

3
4 MR. MARSHALL: Mr. Commissioner,
5 surely that's a question that tribunals, perhaps your-
6 self, perhaps the government, perhaps the National
7 Energy Board and so on, have the responsibility to
8 deal with. I suppose this witness can comment on
9 the extent to which various factors have been taken into
10 account in arriving at the routes proposed, but I don't
11 know that he is really in a position to answer the
12 question Mr. Bell has put to him.

13 THE COMMISSIONER: And if he
14 did answer it the way that you wished, where does that
15 get us?

16 MR. BELL: Well, sir, it helps
17 us to ascertain the weight, the relative weight which
18 is attached to socio-economic factors by the applicant.
19 I mean if the panel can't think of a single instance
20 in which such a veto would occur, I suggest that
21 we can draw conclusions from that.

22 A I think Mr. Trusty has
23 a comment.

24 WITNESS TRUSTY: Well not
25 so much in response to the question as a comment on
26 the question of relative weighting of socio-economic
27 material which I understand the thrust of where your
28 question is going. Mr Horte testified to this question
29 in Yellowknife and the essence of his testimony is
30 that the socio-economic matters, if you like, were
31 placed in third order in terms of route selection.

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 Cross-Exam by Bell

1 A third order in this sense, it's our view and our
 2 judgment that the existence of the pipeline in the
 3 valley is what carries the major socio-economic
 4 effects. That once a broad corridor, if you like, and
 5 that corridor is, you know, is very broad in my view,
 6 has been established, the existence of a pipeline in
 7 that corridor can raise the major effects. Now that's
 8 not to say that there aren't specific effects at spec-
 9 ific locations, and that becomes much more the mile by
 10 mile routing question. In that case, socio-economic
 11 matters move more to the fore, as is evident in the
 12 April '73 meeting, and were taken into account in
 13 determining any route changes that should be made.
 14 There were no route changes as a result of socio-economic
 15 considerations. That reflects the fact that in the
 16 view of the consultants on socio-economic matters who
 17 were present at that time there was no necessity for
 18 such route changes as a result of socio-economic
 19 considerations.

20 THE COMMISSIONER: That seems
 21 to me a good summary of what we heard in Yellowknife.

22 MR. BELL: Yes, I agree that
 23 it's what we heard at Yellowknife. Well, perhaps I
 24 can pass onto another matter now.

25 THE COMMISSIONER: Before you
 26 do, Mr. Trusty, you said that at Hedlin Menzies I think
 27 you were engaged in the study of the economies of under-
 28 developed countries.

29 A Yes sir.

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Cross-Exam by Bell

Not just at Hedlin Menzies.

Q Well, in your career as
an economist. What countries had you been looking at,
could you tell me?

A Primarily in the sub-
continent region, and within that context, primarily
Bangladesh at the time that it was East Pakistan.

THE COMMISSIONER: Thank you.

MR. BELL: Q Mr. Hemstock,
do you recall a pipeline study group called Mountain
Pacific?

WITNESS HEMSTOCK: I recall
the name, yes.

Q Can you tell us anything
more about it? Can anybody on the panel tell us
anything --

A I'm afraid I can't.

Q -- about that group?

WITNESS DAU: No sir.

WITNESS WILLIAMS: Just very
vaguely, Mr. Bell, they attended that meeting in Ottawa
that we discussed at Yellowknife, with the minutes of
the meeting, they were in attendance there. Their
tentative routing did appear on a map that was presen-
ted at that meeting. My recollection is that the
proposal was to come down the Rocky Mountain Trench
in the southern end, anyway, more in the interior of
British Columbia.

Q Do you know if they have

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Cross-Exam by Bayly

published any reports or studies?

A No sir, I am not aware
of it.

MR. BELL: Well fine, thank you,
those are all the questions I have, sir.

THE COMMISSIONER: Thank you,
Mr. Bell.

MR. GOUDGE: Mr. Bayly would
be next, I think, sir.

MR. BAYLY: Mr. Commissioner,
I think I have developed a lawyer's problem of leaning
on things.

CROSS-EXAMINATION BY MR. BAYLY:

Q Mr. Banfield, if I may
start with you and if I may ask you, please, to turn
to the prepared evidence at page 3? Near the top
of the page there is a statement made that:

"The prime route may not be available because
of the existence of the Arctic National Wildlife
Range."

Now, as I understand the statement made in the prepared
evidence refers to that portion of the North Slope in
Alaska which may be set aside by the Department of the
Interior as an Arctic Wildlife Range. Is that correct?

WITNESS BANFIELD: No sir.
It applies to the area you mentioned that is already
established as the Arctic National Wildlife Range.

Q Am I correct in this
statement, that there are proposals to extend a Wildlife

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Cross-Exam by Bayly

1 Range so that it crosses the international boundary and
2 takes in a portion of the Canadian North Slope.

3 A Yes sir, there are propo-
4 sals.

5 Q Now, should these proposals
6 create an International Wildlife Range, and this ques-
7 tion is not addressed to you, sir, but perhaps it might
8 more appropriately be addressed either to Mr. Dau or
9 Mr. Williams, and if that area were not available both
10 in Canada and the United States, what would the position
11 that N.E.S. takes with regard to recommending the
12 prime route be? In other words, if you were prohibited
13 from using it because of some international agreement
14 between Canada and the U.S. Department of the Interior,
15 where would you go?

16 MR. MARSHALL: Perhaps it
17 would be useful if you could define what the extension
18 would be within Canada of this proposal you're dis-
19 cussing.

20 MR. BAYLY: Mr. Commissioner,
21 I'm posing a hypothetical. I do not know what the
22 boundaries would be, as it's only in the discussion
23 stage, as I understand from Dr. Banfield's evidence.
24 Now let us assume, though, for the purpose of the
25 hypothetical that it extends along the Canadian
26 portion of the North Slope for some significance dis-
27 tance into the Yukon.

28 WITNESS DAU: The second
29 choice from an engineering and economic point of view
30 would be the interior route.

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Cross-Exam by Bayly

Q In other words, rather than as you have suggested on page 3, if it were only in Alaska, perhaps' opting for offshore facilities and then coming back onshore in the Yukon, you would prefer if there were an International Wildlife Range which would prohibit you from going through it onshore, to use the interior alternate route?

A Yes, in your hypothetical case I'm assuming that it would add 100 miles or a couple of hundred miles offshore pipelining along the Canadian Arctic Coast. In that event, of course, the second choice would be the interior route.

Q And the choice of going offshore all the way, as I understand from your evidence not only here but in earlier panels, is a low priority because of difficulties with ice scour and technology, is that correct?

A That's correct.

THE COMMISSIONER: Is it on the board or is it off the board, that one, the offshore? Is it something you would be willing practically to consider?

A Not at this stage, sir. It involves a great deal more study, considerable investigation in the Beaufort Sea, the occurrence of permafrost, ice scour, so on, and a lot of investigation into the amount of ice cover at different times of the year, development of new equipment; as we say, we have serious doubts whether it really literally could be done.

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Cross-Exam by Bayly

1 MR. BAYLY: Q Now, staying
2 on the North Slope but removing ourselves from that
3 hypothetical situation I've just given you, Mr. Dau,
4 and perhaps Mr. Williams would want to answer this
5 question, if we take as a given that the Alaskan ex-
6 perience was to want to build winter road facilities
7 for the purpose of construction but that they had to
8 change their plan and build a permanent road, if that
9 circumstance should occur, or should be contemplated,
10 by Arctic Gas along the North Slope would that be
11 enough to cause you to recommend that the North Slope
12 not be used as the prime route?

MR. MARSHALL: Mr. Bayly, has, I
have always thought, been a model of clarity in his
questioning, and he gets right to the point, but I'm
afraid this has got hypotheticals on hypotheticals and
there's just no evidence as to the beginning hypotheses
he's advanced; and -- I think he has asked something that's
impossible to answer.

M R. BAYLY: Let me explain it to
Mr. Marshall, if I can then, although I don't expect
him to answer the question, Mr. Commissioner, I've
addressed it to the panel. The question is this:

Q If you can't build the
pipeline across the North Slope without building a
permanent road, as appears to have been the experience
in Alaska, would you opt for a route other than the
North Slope as the prime route. Is that clear enough?

MR. MARSHALL: Yes, even I
understand that.

WITNESS WILLIAMS: I'd have

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Cross-Exam by Bayly

1 to argue a little bit, Mr. Bayly, with what you have
2 said. You talk about the experience in Alaska, it's
3 my understanding that Alyeska opted for the all-weather
4 road and the gravel pad associated with their construc-
5 tion. I don't think it was particularly from any ex-
6 perience they had. It was their opinion that that was
7 the way they wanted to go.

8
9 Now if somebody rules that a
10 gravel road or a gravel work pad would be required with
11 a chilled gas pipeline, I don't think it would
12 appreciably change things from an engineering-economic
13 aspect because if we are talking about a gravel pad
14 on the right-of-way to aid summer construction, or are
15 you talking about a gravel haul road as Alyeska have
16 done along with the gravel pad to aid summer construc-
17 tion? In the case of the interior route, obviously
18 the haul road is there. If a gravel pad for summer
19 construction was required, there would be a great
20 deal required on the interior route as well as the
21 coastal route from Prudhoe Bay to the Brooks Range
22 where the Canning River comes out of the Brooks Range
23 as a matter of, I think, close to 100 miles. When you
24 get east of the Brooks Range in the Chandalar Valley,
25 presumably a gravel pad would be required in that
26 area. You'd skip the 100 miles of rock right-of-way
27 through the Brooks Range per se, but if the regulation
28 is made in one area, presumably it will apply to the
29 other, and the difference in granular material require-
30 ment, I don't think would be that great.

Q All right.

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A So it wouldn't change the
engineering-economic aspect appreciably.

Q So from an engineering
point of view it doesn't matter. It can be done both
ways, would that be fair to say, on the North Slope?

A Yes, I would say "yes".

Q Now, I'd like some
comment from the other members of the panel, and par-
ticularly Mr. Hemstock or Dr. Banfield, if it came
about that the only sensible way to build the facility
along the prime route on the North Slope was to build
a road alongside it, now either a gravel pad, as has
been described by Mr. Williams, or a permanent haul
road, would that change the kind of recommendations
either of you gentlemen would give to Arctic Gas about
the prime route?

WITNESS HEMSTOCK: Certainly
from an environmental standpoint we would see more
impact on the environment as the result of the construc-
tion of either a gravel pad or a gravel road. I
would point out, though, that that same concern about
the construction of the gravel road would apply to
the interior or any other route as well because of
the impact that -- additional impact that a highway
or road would have on wildlife in general.

Q All right, but we do have
-- at least in part of the interior route, as I under-
stand -- a permanent road under construction.

A That is in the mountain
areas,

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Q Yes.

A But as Mr. Williams has pointed out, your assumptions would cause roads to be built over other parts, or the rest of that route.

Q All right, from an environmental point of view, would you prefer to see a permanent or gravel pad road in the interior along the North Slope, if it had to be?

A There are a great many considerations that have to be made when you make that assumption, and I --

Q I'm not talking about the economics.

A -- wouldn't be able to make that conclusion now. My first reaction would be that I would think a road on the interior route would cause more concern because again you're working in defined areas and in many cases the valleys which the pipeline -- and in this case the road -- would be required would be or are migration paths for wildlife and so on, and I would be more concerned on first glance at that for that area than I would have it on the open areas of the Arctic coast. But to reiterate again, I think that that kind of construction in either case would, from an environmental standpoint, be undesirable. Perhaps Dr. Banfield has other comments.

Q All right, Dr. Banfield do you have any comments about that? Where would you rather see a road if one had to be built?

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1 WITNESS BANFIELD: A I am really still trying
2 to cope with your hypothetical assumption.

3 Q Let me make it clear to
4 you that my hypothetical is based on the fact that it
5 may happen that in order to build the pipeline, a snow
6 road by itself will not be satisfactory, and a more
7 permanent installation will have to be made in order
8 to do the construction, maintenance, etc. If that
9 were the case, given that the routes would either be
10 along the North Slope of the Yukon or through the
11 interior, where would you prefer to see the road if
12 it had to be built?

13 A Well, I'd like to not
14 answer you directly first, sir, but to continue to
15 elaborate on your hypothesis, which I think is a good
16 one , and to point out that we are in a feasibility
17 stage at this point in considering the whole project,
18 and this is why we can consider such hypothetical
19 conditions, and I accept, too, in many quarters the
20 practicality of a snow road has been questioned, I'll
21 agree with you. At this point I would merely say
22 that if that was one of the realistic alternatives,
23 or what might come about through stipulation by
24 government or possibly this Inquiry, the environmen-
25 talists associated with the project would say --

26 THE COMMISSIONER: You mean
27 if we stipulated a gravel road.

28 A Yes sir, we would
29 ask for another -- or this would greatly change the
30 environmental impact analysis of the project. We

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Hemstock, Banfield, Trusty
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1 have accepted what we have been advised by our engineers
2 that the proposed mode of construction is in fact
3 practical, that they have the experience to undertake
4 it, and to the environmentalist that engineering fea-
5 ture -- construction feature becomes one of our prime
6 mitigating procedures that will mitigate the possible
7 environmental impact of the project.

MR. BAYLY: Well, may I take
from what you're saying then that if it turned out
there had to be a permanent or gravel pad road that
you would ask for time to do more research into this
because it's not a factor you have taken into consider-
ation because it's not one of the givens?

A Yes sir. We took it
into consideration and rejected it, and adopted the
mitigative procedure that has been recommended as part
of the project. To reply to your question originally,
if you had to build a road which would you prefer,
I have great difficulty in answering this immediately.
I have simply -- I wouldn't like a road either place,
but this is one of the reasons why we believe that
the coastal route has an advantage, in that the inter-
ior route demands certain sections of permanent construc-
tion road.

Q All right. Now, I under-
stand from Mr. Marshall, Dr. Banfield, that you will
be coming back at a later stage in the proceedings,
and it would be something I would appreciate your at
least thinking about for the time when we're talking
about the impact of the facility on the living

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environment, and perhaps if Mr. Marshall has no objection, Dr. Banfield could think about that.

MR. MARSHALL: Yes, we intend to bring Dr. Banfield back when we reach the third phase, and undoubtedly he will be thinking about what Mr. Bayly has been suggesting.

MR. BAYLY: Q Mr. Trusty, you've been listening to this discussion on the hypothetical road, if we can call it that. Have you done any studies or seen any studies with regard to the social impact of say the use of a road if one were to be built on either of those routes?

WITNESS TRUSTY: No sir, no specific studies. Undoubtedly a road has social impact and in my view far more social impact than does something like a pipeline.

Q All right, and if you were in the position of making recommendations with regard to a road, if one had to be built to construct, would that change your opinion as to whether a facility should be built along the prime route or the interior alternate? From a social and economic point of view.

A Offhand, sir, it seems to me that from a social and economic point of view it would be the existence of a road linking two points, in this case linking the Yukon with the delta -- I'm sorry, linking Alaska and the Alaskan road network with the Yukon road network, with the Mackenzie Valley. It's the existence of that road that would bother me more than the specific routing. There are a few

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1 communities there that in any event in one case it
2 would be Old Crow that would be more affected, although
3 the Dempster is already there; in the other case it
4 would be the communities like Aklavik. But it would
5 be the existence of the road more than its routing
6 that would bother me.

7 Q The traffic on it rather
8 than the influence on individual communities.

9 A And the inter-connections
10 it provides. I might mention that also the roads
11 obviously produce benefits. It's not all disutility.

12 Q Yes, I realize that.

13 THE COMMISSIONER: It's not
14 all what?

15 A Disutility.

16 Q Disutility?

17 A A good economist's
18 word, sir.

19 MR. BAYLY: I believe that
20 means it's not all bad, Mr. Commissioner.

21 (LAUGHTER)

22 WITNESS WILLIAMS:

23 A Mr. Bayly, before you
24 leave that point, can we just clarify so everyone
25 understands what Alyeska has done and are doing?
26 North of the -- there are existing highways fairly
27 close to the route south of the Yukon River. North of
28 the Yukon River they have built a haul road. In
29 addition to that, for almost the entire length of the
30 right-of-way, which is separate from the haul road --
31 their right-of-way is not immediately adjacent to the

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1 highway, in all cases; in some cases it's quite widely
2 separated-- they are constructing, first of all the
3 haul road is constructed to highway standards with
4 four to six feet of gravel. In addition to that along
5 the right-of-way they are constructing a gravel pad
6 which allows them to work in the summertime, and this
7 gravel pad is 18-24 inches thick. Now, I don't know
8 what their long-term plans are for that gravel road,
9 whether they are going to maintain that for operation
10 and maintenance procedures. When you get to the
11 environm ental aspect, it's my understanding that a
12 lot of the concern is with respect to access to the
13 country by hunters and trappers and fishers, people
14 getting in and over-harvesting the resources. Now, if
15 the gravel pad is not maintained for future traffic
16 I think that would be a different circumstance than
17 if it were maintained; or if it were a haul road in
18 addition to the gravel pad along the right-of-way.
19 I think there are two situations that you may be
20 asking there: (1) is it a haul road for year-around
21 operation (2) the other is a gravel pad along the right-
22 of-way that may not be usable for all-year service.

23 Q Well, I appreciate, Mr.
24 Williams, your making that distinction. Following up
25 on that with one more question, if from an engineering
26 point of view it made sense to build this gravel pad
27 the less or the facility that couldn't be used all
28 year-round necessarily, would it be your engineering
29 advice to maintain that for the purposes of operation
30 and maintenance, or to do operations and maintenance

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1 without it, and either remove it or let it go?

2
3 A Well, our present plan is
4 not to have all-weather access in that particular area,
5 Mr. Bayly.

6 Q I realize that, I'm again
7 in the hypothetical kind of situation , that you're fac-
8 ed with the possibility of having to build something
9 like that.

10 A I would think that if
11 a gravel pad was deemed necessary, which I wouldn't
12 agree with, but if somebody deemed it necessary that
13 there would be a strong recommendation from the
14 environmental groups to have that gravel pad -- to not
15 maintain that gravel pad for future access.

16 Q All right. Well as an
17 engineer would you argue that from an operations and
18 maintenance point of view, or would you agree with it?

19 A Oh, certainly from a
20 straight operations and maintenance point of view it
21 would be better to have it as an all-weather access.

22 Q If I can refer to page
23 6 of the prepared evidence, I think Mr. Hemstock, it
24 was your presentation, starting at the bottom paragraph
25 which told us that areas of future exploration and
26 therefore areas of future potential gas supply include
27 the North Slope of the Yukon along the Beaufort Sea
28 and in the interior, in the Eagle Plain Basin. Now,
29 would it be fair to say that no matter what route you
30 take, those will be areas of continued gas and oil

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1 exploration activity?

2
3 WITNESS HEMSTOCK: Yes, I
4 think that there would be continued exploration
5 activity in those areas.

6 Q And if gas were found,
7 let's take the North Slope, which is the most promis-
8 ing, if gas were found along the North Slope either on
9 or offshore, then facilities would necessarily be con-
10 structed for the removal, processing and preparation
11 of that gas to enter the trunk system, is that correct?

12 A Yes.

13 Q Now, we've gone through
14 the hypothetical of not wanting to build permanent
15 roads for the purposes of trunk lines. For the pur-
16 poses of gathering systems and processing plants,
17 can you tell us whether it would be likely that
18 permanent facilities such as roads would have to be
19 built?

20 A Certainly there would
21 be some roads required in the development of field
22 areas, although there is a fair bit of flexibility
23 there as there is in our operation and maintenance,
24 in that automation will handle wellhead operations
25 and so on, and you can minimize the number of miles of
26 permanent road required in any field development.

27 Q All right, and this
28 area that has been referred to in page 6 along the
29 North Slope of the Beaufort Sea, is the potential
30 gas area all along that North Coast? Can that be out-
lined perhaps by someone on the map that's on the wall?

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1 This 70,000 square miles that you've referred to.

2 A I believe that that area
3 is shown at least 'in general on a map with the appli-
4 cation and I think Mr. Williams has a copy. Perhaps
5 he could outline that. My understanding is that pro-
6 bably the best potential in that area lies offshore,
7 so there wouldn't be any roads there.

8 Q All right, you do have
9 to bring it onshore, I take it, before you can put it
10 into a pipeline.

11 A The processing plant
12 would be onshore.

13 Q They haven't developed
14 a floating processing plant yet.

15 THE COMMISSIONER: From an
16 environmental point of view, would you rather it was
17 onshore or offshore, assuming it were to be developed?

18 A I would rather that it
19 was onshore. I believe that the very severe environ-
20 mental conditions offshore in the Beaufort Sea are
21 going to make the development very difficult and I
22 would prefer that they were found onshore, but we don't
23 have much control over those things.

24 MR. BAYLY: Perhaps Mr. Williams
25 could just draw with his pointer that area.

26 WITNESS WILLIAMS: The map
27 indicates the Mackenzie Delta-Beaufort Basin to be
28 roughly this area.

29 Q Indicating the delta and
30 Tuk Peninsula.

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1 A Mackenzie Delta, yes,
2 up to Herschel Island, and north of Herschel Island.
3 It indicates the Arctic Slope basin to extend to the
4 foothill region, right away past Prudhoe Bay, to
5 Barrow and out into the Beaufort Sea roughly
6 covering that area.

7 Q Thank you, Mr. Williams.
8 Would it be fair to say then, Mr. Hemstock, that this
9 area will be one perhaps of intense continued activity
10 related to the pipeline in that it will be looking for
11 gas to put into it that will last long after the con-
12 struction of the pipeline along the prime route?

13 WITNESS HEMSTOCK: I think in
14 general that statement is correct. I would personally
15 disagree with your description of the exploration
16 effort as being intense. The exploration in that kind
17 of an environment is so terribly costly that I believe
18 that it will be a continuing exploration effort, but
19 that that will not involve a great number of wells.

20 Q All right, what I'm
21 suggesting to you by use of the word "intense" is not
22 continuous but not casual, a very serious look in this
23 highly potential area for more resources to fill up
24 the pipeline. Would that be fair to say?

25 A I would agree with that,
26 yes.

27 Q All right, and so this
28 is one of the prime reasons for wanting to use this
29 route in that it may be an area in which impacts will
30 continue because of exploration. They may not all be

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1 bad impacts, but they will be impacts.

2 A That is one of the reasons.

3 Q And do you envisage if
4 there is success in finding gas either offshore or on-
5 shore the necessity for more permanent facilities than
6 the picture we have presented to us of a covered pipe-
7 line?

8 A Well, certainly depending
9 on where the reserves are located, at those particular
10 locations there will be specific activity. The devel-
11 opement, though, of petroleum reserves generally in-
12 volves rather small areas of the land surface so that
13 it would be very much a site specific type of develop-
14 ment.

15 Q And this area that is
16 referred to is the area that you were cross-examined
17 on by Mr. Anthony yesterday with regard to the future
18 oil prospects and exploration, and the development of
19 a possible oil pipeline.

20 A The possible oil pipe-
21 line, as I recall it, that we were speaking about
22 yesterday, dealt with an oil pipeline up the Mackenzie,
23 and my assumption would be that that oil pipeline
24 would pick up its reserves from the Mackenzie Delta
25 area.

26 Q Your impression is that
27 the oil reserves are more concentrated than the gas
28 reserves in the area that is now expected as oil
29 potential.

30 A I think we're speculating

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1 again, but I would assume that if oil was located in
2 any area in Alaska that it would go out to market via
3 the Alyeska Pipeline, and that if oil is located in
4 Canada, that it will go to market via the Mackenzie
5 Valley Pipeline.

6
7 Q All right, now you've
8 spoken about continued activity in the Eagle Plain
9 Basin, and I would assume then that if gas were found
10 in that area that was marketable, that it would have
11 to come out either by bringing it up through the delta
12 to join with the trunk pipeline down the Mackenzie
13 or through the interior to join up with the American
14 facility. Would that be fair to say?

15 A I would assume that if
16 sufficient reserves were located in the Eagle Plains
17 area that it would be tied into the Canadian trunk
18 line.

19
20 Q So what we can expect, if
21 reserves prove as fruitful as some people are hoping
22 is that there will be lines of either a trunk or feeder
23 nature both from the North Slope and from the interior.

24 A Yes

25 Q Now, Dr. Banfield, you
26 have been listening to this discussion and you've intro-
27 duced the new word "synergistically". Do you feel that
28 the kind of development that has been hypothesized
29 in this discussion in the last few minutes is one in
30 which impacts which you have assessed only for the
purpose so far of a trunk system will increase in that
synergistic fashion?

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CrossExam by Bayly

1 I know that is a very general question. If you wish to
2 specify it with regard to certain species or plant as
3 opposed to animal life, please feel free to do so.

4 WITNESS BANFIELD: No, Mr.

5 Bayly, I think it's more fruitful to remain on a
6 general level, since it's a general hypothesis. We
7 have always had these other developments in mind when
8 we have discussed the pipeline route, and in our
9 documentation reference has been made to a conclusion
10 that there will be less environmental damage if these
11 tie-in laterals from fields were shorter rather than if
12 they had to travel southward over 100 miles to connect
13 up with an interior route. There would then be long
14 north and south laterals through the Brooks Range and
15 through the Old Crow Flats, and around Old Crow Flats,
16 and we foresaw that as a risk, an environmental risk
17 in just sort of a general way we have been discussing
18 it. So we have had these developments in mind. We've
19 known the facts or the assumptions made on reserves,
20 and so we have considered them and certainly they are
21 synergistic. Yes sir.

22 Q All right, so you've
23 made your recommendations in the light of the realiza-
24 tion that the development we have outlined is perhaps
25 even more than a strong possibility.

26 A Well, not being a petrol-
27 eum geologist, I have no knowledge as to whether it's
28 a strong possibility or a remote possibility.

29 Q What I'm suggesting, sir,
30 is that you've been given these as facts to work with

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Bayly

1 in your assessment of the impact.

2
3 A Yes sir.

4 Q Now, we have heard from
5 the president of Arctic Gas in his evidence that one of
6 the reasons for building a large diameter trunk line
7 is to avoid going into areas which may be sensitive too
8 soon after having gone into them in the first place.
9 In other words for the purpose of looping, and for the
10 purpose of adding compression it is optimal to have
11 a fairly long time space interval. Would you be prepared
12 to say that that is true?

13 A Yes sir. Again also we
14 have discussed that matter and as has been mentioned or
15 brought out in this Inquiry, the Prudhoe Bay, the pro-
16 posed Prudhoe Bay lateral, as well as the proposed
17 Mackenzie Valley, Mackenzie Delta lateral are -- I'll
18 used an unsophisticated phrase -- over-sized in the
19 first instance, and as you've described, this has been
20 since they cross relatively sensitive tundra ecosystems
21 this has been considered an environmental plus, an
22 advantage for the reason that it will not be necessary
23 to go back there quickly and loop those lines, and we
24 have also been led to believe, of course, that this is
25 still a matter of speculation, it's conceivable if you're
26 thinking of worst case, I'm permitted to think best
27 case, there may not be enough gas supplies to necessitate
28 the looping.

29 Q All right. Now, how soon
30 is "too soon" in general terms? As a biologist how long
31 would you like to see before looping after the initial

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Cross-Exam by Bayly

1 construction of the trunk line, for the recovery of say
2 species of grasses, for the settling down of any
3 animal species that may have been disturbed, or popu-
4 lations that may have gone off their nesting or whatever,
5 because of construction or related activities?

6 A Well, that obviously is
7 related to the type of ecosystem that is involved, and
8 you now have switched to the trunk line and we felt
9 that since you were moving southward you had greater
10 annual productivity in the vegetation there, and so that
11 the too-soon period was much shorter than the too-soon
12 period on the tundra where you have much slower restora-
13 tive regime. So again --

14 Q Have you, sir, given
15 guidelines to Arctic Gas about too-soons for the
16 specific areas that the prime route intends to cross?

17 A Generally you'll find
18 a discussion of this in the vegetative studies, and
19 in an understanding and appreciation of the different
20 potentials of the different environments. I would say
21 that you're asking for a figure that perhaps no one
22 possesses, but certainly within five years is too soon
23 for the tundra. I think most all Arctic ecologists would
24 agree with that. Down the Boreal Forest it would
25 certainly be quicker that one could -- sooner that
26 one could get back in there and observe restoration,
27 having been affected.

28 Q All right, now when I
29 say that you had introduced us to this mutiplication
30 or synergistic effect, I would like to read from Mr.

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1 Horte's evidence, and invite you either to agree or
2 disagree with the statement that he's made that does
3 not appear to follow the theory that you've propounded
4 in the last couple of days, and I'm referring to Volume
5 42 of the transcript at page 5547, and that's the
6 direct examination of Mr. Horte, and I'll start on that
7 page at line 29, and go over onto the next page, and he's
8 dealing here, to give you the background of it, with
9 the reasons for using the 48-inch line as opposed to
10 the 42-inch line. He says:

11 "Whereas if the buildup were slow, the economic
12 decision would probably favor the 42-inch system,
13 but,"

14 I'm sorry, I haven't got the page I want. If I can
15 refer you to a correction in that, it should be 5569
16 and 5570, referring to looping, 5569 of the same volume
17 and a question of Mr. Genest at line 16,

18 "Would you go on, Mr. Horte? You were going to
19 talk about impact now.

20 A Well, the looping of the pipeline, if and when
21 it occurs, will of course involve environment-
22 al impact similar to the environmental impact
23 of the original line. It will obviously be smaller
24 in scale as it is unlikely you would completely
25 loop the line in as short a period of time as
26 you constructed the original system. It will
27 be built up in increments over a longer period.
28 We would expect the impact to be somewhat less
29 than in the original line in that logistical
30 facilities will have previously been constructed,

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Cross-Exam by Bayly

1 the same right-of-way will be utilized albeit
2 that this might have to be extended for a dis-
3 tance of 15 to 20 feet, and of course any com-
4 pression added in connection with the loop line
5 would be located on the original compressor
6 station pads. Very few, if any, additional
7 operational impacts would occur. I think it
8 is also obvious that further impacts on an area
9 already impacted upon will be of less environ-
10 mental and sociological significance."

11
12 Now, the way I interpret that
13 in the light of what you have said, you and Mr. Horte
14 did not agree on the synergistic effect of additional
15 impacts on an area already impacted, as he puts it.

16 A Well, I can't agree with
17 you. I have never listened to that testimony before
18 so naturally I was listening to it very closely. I
19 think you will find it's very close to the testimony
20 that has been presented here in the last couple of
21 days by Mr. Hemstock and myself. I think -- I was
22 really surprised at the close parallel. I think those
23 are almost exactly the description of expected incre-
24 mental impact that Mr. Hemstock gave to previous
25 questions.

26 Q All right, but the way I
27 have interpreted that -- and I'll read the last sent-
28 ence again:

29 "I think it is also obvious that further impacts
30 on an area already impacted upon will be of
31 less environmental and sociological significance."

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1 Now, I suggest to you, sir, that that means that it
2 is a question of addition of impacts rather than multi-
3 plication, if I can put it in simple terms. Would that
4 be fair to say?

5
6 A Yes. I've listened
7 more closely to the last expression, and I think I
8 would agree with you in your analysis; but I'm not
9 surprised to hear this. I have never discussed this
10 question with Mr. Horte, and if he wishes to present
11 his own environmental impact analysis as president of
12 Canadian Arctic Gas, he certainly has the right to
13 do so.

14 Q Thank you, Dr. Banfield.
15 Dr. Clark, if I recall your evidence on earlier panels
16 you and I discussed the critical location of compressor
17 stations, that they be a certain distance apart for
18 optimal functioning. It was your evidence, I take it,
19 is that correct?

20 WITNESS CLARK: I don't believe
21 that was my evidence, Mr. Bayly. I think it was probably
22 Panel 3 of Phase 1, the flow study group.

23 Q In that case I'll just
24 address this question to the panel generally. You may
25 be the person best equipped to answer it, but if it
26 wasn't your evidence I won't try and pin you to it.
27 We were told, in any event, and I believe it was the
28 third panel, that distance governs the location of
29 compressor stations and that an optimal distance for
30 compressor stations on a 48-inch line is in the vicinity
of 65 miles apart, in one statement; and then we were

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1 told in another statement in the application that it
2 is 42 miles apart. Now --

3
4 MR. MARSHALL: Perhaps, Mr.
5 Bayly, you could give us a reference in the transcript,
6 so we could --

7 MR. BAYLY: I haven't got a
8 reference because this came up in my doing a little
9 doodling with figures last night, in your prepared
10 evidence. I believe the reference is in Volume 8 of
11 the application. Again it's a problem of not having
12 brought that volume and not having the reference.
13 Let's start the question this way.

14 Q Is there a member of the
15 panel who can suggest the optimal distance for compres-
16 sor stations with the space in between them?

17 WITNESS DAU: I thought it
18 was 50, but it depends on first, Mr. Bayly, if
19 you're talking about the chilled gas system, that has
20 a certain spacing.

21 Q That is what I'm --

22 A In the cooled there's
23 a different spacing.

24 Q Yes, I'm talking about
25 the chilled system, and I'm assuming that no matter
26 what alternate we're talking about, for the purpose
27 of this corridor panel, we're talking about a chilled
28 system.

29 A Well, sir, I was under
30 the impression it was on the order of 50 to 55 miles.
It also is dependent upon terrain, of course.

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1
2 Q All right now, turning to
3 the canned testimony at page 9, there is a table which
4 gives us the number of stations on the various routes.
5 Now, given Mr. Dau, that these are all chilled systems,
6 is it fair to say, to take the number of stations and
7 divide it into the total number of miles, or are we
8 mixing things there because there will be some undilled
9 system as we get farther south?

10 A That's correct, sir, it
11 will be a cool system at some point.

12 Q All right, so we can't
13 tell from that how far apart you would intend to put
14 the stations other than you would want to put them
15 optimal distances apart on any of the alternates to
16 the prime or interior routes?

17 A That's what we attempted
18 to do, sir, is on the alternative corridors, stations
19 are located for the design throughput levels of 4 1/2
20 billion cubic feet a day.

21 Q All right, so any division
22 that I have done which -- and if I have done it --
23 suggesting that the average distances vary from 77 to
24 88 miles apart, must reflect the fact that some of the
25 gas or the gas at some point ceases to be chilled at
26 the same temperatures. Mr. Williams is shaking his head.

27 A No, can you refer to a
28 particular line section?

29 Q Certainly. Let's take the
30 prime route, I counted up the number of stations and

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1 I divided into the total systems mileage and got a
2 spacing of 77.3 miles.

3
4 A In that case, sir, you
5 were mixing up the stations -- you were mixing up the
6 supply laterals, which are at a throughput level of
7 2 1/4 billion cubic feet a day, that does not have
8 all the stations installed, plus the mainline which
9 has a mix of chilled and cooled stations, and in
10 addition you have the delivery laterals south of
11 Caroline which are not at optimum throughput levels.
12 The station sites are, but the stations are not all
13 constructed.

14 Q I was hoping this would
15 give me a reason to get you to move some of your
16 compression stations, but I can see that I'd need more
17 figures, so I'll leave that for the time being and see
18 if I can work it out with additional figures at a
19 later stage in the hearing.

20 Now, if I can refer to page
21 11 of the prepared evidence, and following up some
22 cross-examination that occurred yesterday, on the
23 question of staying on schedule, and I'm referring to
24 the second paragraph in that section called:

25 "Construction and logistical considerations."
26 Now, can anyone on the panel suggest why it is necessary
27 no matter what route you take, to stay on the same
28 construction schedule? That is to complete the line
29 within the same period of time.

30 A The desire, of course, is
31 to get into service as rapidly as possible. In other

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1 words, complete the system as fast as you can, which
2 reduces your interest during construction and so on,
3 which lowers your unit transportation cost.

4 Q All right, so that is
5 really a financial consideration of the investors and
6 owners in that they want to get something back for
7 the vast amount they've put in as soon as possible.

8 A Yes.

9 Q Is it therefore fair to
10 say that it is not necessarily a constructin or engin-
11 eering optimum to do the construction necessarily as
12 quickly as this, given that if you were to take say
13 the Fairbanks corridor, you could add a tremendous
14 number of additional miles?

15 A Well, we attempted to
16 do that on page 14, to illustrate that on page 14,
17 Mr. Bayly. You will note at the bottom line on
18 those tables, lists the maximum spread requirements and
19 if you refer to the prime route, the offshore corridor
20 Fairbanks and Fort Yukon, they all have nine. The
21 interior route is a different case because it happens
22 to be one of the routes that utilizes some summer
23 construction in the Brooks Range, and for that reason
24 it went to 11. You probably recall the testimony
25 in Yellowknife where it was our opinion that nine was
26 approximately the maximum number of spreads that we
27 thought we could get for this system. Now the system
28 we're talking about at Yellowknife obviously was the
29 prime route. We've carried that reasoning through to
30 the other corridors.

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Q So for the purpose of the
other corridors you would just have your nine spreads
working winter and summer in different areas, where
summer construction was possible.

A Yes, that's correct, sir,
and we've tried to say that we obviously haven't
examined a construction plan for these alternative
corridors in the same depth as we have for the prime
route, and that's why we said we essentially don't
have as much confidence in meeting those as we do
with the prime route.

Q And that's because of
the way you work out the number of spreads, is to go
to the people you expect might be doing the actual work
and saying, "Tell us what you think you need in terms
of time and spreads to do it," is that fair to say?
And you haven't done that for the alternates.

A That forms part of the
process, yes sir.

Q Yes, and that wasn't
something that was done with the alternates, but only
for the interior and prime routes.

A That's correct, sir.

THE COMMISSIONER: We'll break
for coffee now.

(PROCEEDINGS ADJOURNED AT 11:15 A.M.)

(PROCEEDINGS RESUMED AT 11:25 A.M.)

MR. BAYLY: If I can refer
you to page 15 of your prepared evidence, on a general
question to the panel, with regard to alternate routes

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1 and the fact that there is permanent highway along
2 some of them, am I correct in understanding that that
3 is a real plus from the point of view of operations
4 and maintenance that that facility exists, either close
5 to or on -- sorry, close to or in the area of the
6 proposed right-of-way for the Fairbanks and Yukon
7 corridor along considerable portions of its length?

8
9 adjacent to a pipeline route A The existence of a highway
10 is a plus in access for operations and maintenance, yes.

11 Q But you have stated that
12 in order to do the operations and maintenance in the
13 way that you would like to, you would also want to
14 have air strips close to or at compressor station
15 sites.

16 A Yes.

17 Q Now, referring to page
18 22 of your prepared evidence, you refer to borrowing
19 and quarrying of granular materials and you refer to
20 the way it's done and how you clean up after. Has
21 any assessment been done for the alternate corridors
22 as to whether there is sufficient borrow or granular
23 material to construct a trunk facility?

24 WITNESS CLARK: We certainly
25 haven't done any type of detailed assessments for the
26 other routes. It was assumed that it was available from
27 a general knowledge of the area in respect to potential quarry
28 sites and mountainous areas and gravel, and perhaps flood
29 plains.

30 Q All right, and if you
were to be compelled to use an alternate route, and

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1 let's take for example the route along which the oil
2 pipeline travels for a considerable distance, would the
3 two uses of gravel mean that there would not be enough
4 for your facility as well as an oil pipeline? Or has
5 that been assessed?

6 A It wasn't been assessed.

7 Are you referring now to Big Delta?

8 Q Yes.

9 A I would think that there
10 would be enough there, but we haven't done a detailed
11 assessment with respect to quantities. There are
12 very large quantities.

13 Q All right, so you don't
14 anticipate that as being a problem by itself.

15 A No sir.

16 Q Now, without getting into
17 the area of debate over aesthetics, I'm referring to
18 page 23, the second paragraph of your evidence, are
19 these observations on the aesthetic impact of the
20 pipeline those of the panel, or are they the observa-
21 tions of a particular member?

22 WITNESS HEMSTOCK: We used
23 a consultant, had a consultant advise us on the matter
24 of aesthetic impact of the pipeline, in particular his
25 experience was with planning of park areas and so on,
26 and he advised us in this area.

27 Q All right now, may I
28 take it from that that you considered what I would
29 suggest is a different point of view to the one in the
30

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1 second paragraph in which you state:

2 "In the Boreal Forest region the unavoidable
3 pipeline right-of-way clearing may be obtrusive
4 to some, while to others the revegetated strip
5 will provide visual relief from unbroken forest
6 canopy."

7 We have to take it that you realize some people prefer
8 unbroken forest canopy to cut lines or right -of-way
9 lines.

10 A Yes, we agree and we
11 would agree that probably most people would prefer the
12 undisturbed area.

13 Q All right, and this is
14 the point that I was trying to lead you to, that most
15 people would prefer it, but if it's unavoidable you
16 make it as small as possible, that's really what
17 you're trying to say by this, is that correct?

18 A Well, I think we were
19 trying to indicate, too, that there are almost as
20 different -- many different opinions on this, as there
21 are people, and each person has his own perspective
22 on it.

23 Q All right, but your
24 object is to minimize any different visual effects that
25 will necessarily be caused by putting through a facility.

26 A That has been our objec-
27 tive, yes, to blend in the necessary facilities in
28 construction as best we can with the natural landscape,
29 which is there.
30

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1
2 Q And it's fair to say that
3 part of your reasons for revegetating are those as
4 well as any erosion or stability considerations.

5 A Well, revegetation is
6 a start, perhaps, but one of the objectives of revege-
7 tation is to speed up and enhance the natural restora-
8 tion of the local plants which grow in that area, and
9 it would seem to me that the restoration of the aestet-
10 ic status would improve as the vegetation restores to
11 what was originally there.

12 Q All right now, do your
13 remarks that you've made with regard to this hold
14 true for the alternate corridors as well, or are the
15 aesthetic impacts of a pipeline greater in the areas
16 of the prime and interior alternate route than they
17 might be in the Fort Yukon and Fairbanks? Again I am
18 assuming that this is in the realm of opinion in some
19 way.

20 A Again I think that that's
21 a difficult question to answer, because there are
22 several variables involved. The more remote you are
23 from civilization, of course, the fewer people that
24 are impacted with this aesthetic effect. The closer
25 you are to perhaps a broadly used highway such as the
26 Alaska Highway, the more people will see your facilities
27 and the right-of-way which is associated with them.
28 They are themselves, of course, in a disturbed area
29 travelling on a highway, and they may be less concerned
30 about another installation beside the highway than they
would be if it were in an undisturbed area; but if it's

undisturbed, completely undisturbed, there's no one there
to see it.

A No, except that I think we've indicated in the application that we would expect to have great difficulty, or perhaps there would be no point in trying to revegetate some of the mountainous more difficult terrain, and the alternative routes we're discussing have more miles of that kind of terrain, so we would expect that in that area that specific problem would perhaps be more prevalent.

THE COMMISSIONER: The aesthetic impact, you said that if there is no cut through the forest, no one is there so no one's aesthetic sensibilities will be offended; but in this country north of 60 certainly white people observe the wilderness, observe the forest canopy, observe the tundra from the air. I should have thought hundreds of thousands of miles are travelled by air across the north, certainly by white people, and that not as many actually observe the country, so to speak, by travelling whether it's down the Mackenzie River or hiking through the forest, these are questions I'm not really suggesting you ought to answer but it occurred to me when you gave

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1 that answer to Mr. Bayly which put an end to his
2 questions that it might not be the whole story, that's
3 all.

4 A well certainly that's
5 correct, and we have recognized that there are probably
6 more people fly over and observe from the air the
7 northern landscape than are observing it from the
8 ground, and the right-of-way of the pipeline will
9 certainly be very apparent to those people.

10 Q That is, you say it
11 provides relief from the unbroken forest canopy?

12 A Well --
13 THE COMMISSIONER:
14 No, I don't think that's
15 altogether -- there may well be something in that.
16 Don't get me wrong. Well, let's carry on then. I
17 think we've spent enough time on aesthetics this
18 morning.

19 MR. BAYLY: Q Now, Dr. Ban-
20 field, you have stated that you would prefer not to
21 see a road, and it has been suggested by other witnesses
22 that the main problem with a road is not the men who
23 are using it for operation and maintenance, or the
24 men who are using it for construction, but the fact that
25 it opens up a piece of country that has not previously
26 been opened up to motorized land vehicles, and that
27 may be the most devastating effect of a road, quite
28 apart from the intention of the people who built it.
29 Would that be a fair statement to say, that that is
30 the main impact and worry that you have about the build-
ing of a road either through the interior where the

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1 alternate is, or along the North Slope?

2 WITNESS BANFIELD:

3 A It's rather a complex
4 problem that interrelates. If you want to describe it
5 as all introduced by access, then I'll agree to that,
6 as perhaps the prime one. I had other concerns as
7 far as the physical properities of a road related to
8 the wildlife uses of the area.

9 Q Now when you say that,
10 are you referring to wildlife's aversion to roads in
11 some ways, whether crossing them or their propensity
12 to use them to their own peril, or what did you mean
13 by that?

14 A Yes, you've covered both
15 of them.

16 Q Both (a) and (b). Now,
17 if I can refer to page 24, dealing with the planned
18 prohibitions of Arctic Gas with regard to people
19 working on their facility, and down at the bottom of
20 that page it says:

21 "Construction through the Fairbanks and Fort
22 Yukon corridors may result in impacts of the
23 nature expected along the interior route due
24 to the similarity of terrain. Recreational
25 hunting and trapping by construction and on-
26 duty operational personnel will be prohibited
27 and are not expected to have any measureable
28 impact."

29 Does that refer to fishing too? Is it omitted for some
30 special reason, or had you considered that? Mr. Hem-
stock, perhaps you could respond to that.

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1
2 WITNESS HEMSTOCK: We have had
3 many discussions about the advisability of prohibiting
4 fishing and we've had different advice from our fisher-
5 ies consultants. As I recall, our application itself
6 said that we would prohibit fishing.

7 Dr. Wilimovsky of the Envir-
8 onmental Protection Board feels that that is the wrong
9 approach and that it would be more advantageous, if I
10 can quote him properly, to allow fishing, but to be
11 very careful with the recording of the results. In
12 other words, use the fishing to provide you with addi-
13 tional data on the fisheries resources.

14 Certainly we're still consider-
15 ing this. My present inclination is that we would
16 prohibit fishing.

17 Q All right, now, I have
18 been informed that the Alaskan experience in which an
19 attempt was made to do the same thing with regard to
20 hunting was unsuccessful. Their attempts to ban guns
21 and hunting resulted in problems with their workers,
22 with their unions, and in fact the pipeline workers do
23 possess firearms and do hunt the Alaskan wildlife re-
24 sources. Based on that kind of experience, what sort
25 of reaction are you recommending to Arctic Gas to en-
26 sure that this does not happen against your intended
27 wishes in the application?

28 A We referred to exper-
29 ience which I think is much more relevant, and that
30 is the experience of the exploration and development
companies in the delta where they have prohibited

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1 hunting, and I think as far as I am aware have been
2 completely successful in prohibiting hunting by the
3 personnel who are actively working on the drilling rigs.
4 There is, of course, the right of those people to pur-
5 chase licences if they wish, on their off-time, and take
6 advantage of whatever recreational use they may wish
7 that is available to everyone else in the north; but
8 while they're on the job they are prohibited from
9 hunting.

10
11 Q I take it you make the
12 recommendation you do about hunting and trapping be-
13 cause you see the influx of a large number of people
14 pursuing these activities as a possible threat to these
15 resources over the period of construction. Would that
16 be fair to say?

17 A Yes, we see that as a
18 possibility if it is not controlled, and we think it
19 would be a disadvantage to the wildlife and we believe
20 that we can control it with these kinds of regulations.

21 Q All right, but you have
22 stated that when people are on off-hours and perhaps on
23 leave from the camps you have no control over that.
24 You would anticipate that the company would have no
25 control over that.

26 A The plans, as I understand
27 them, are that the people will be flown -- the workers
28 will be flown directly from outside, probably a base in
29 Edmonton, to the worksite, and that those from outside
30 will not have that opportunity. We also expect them
to be working 7 days a week at long hours, and we think

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Cross-Exam by Bayly

1 that in the middle of winter there are not going to be
2 much opportunity to hunt and fish.

3 Q All right. Well, assuming
4 that the Alaskan experience is something that because
5 of the numbers of people and some of the problems that
6 people who don't want to be flown out to Edmonton but
7 actually have driven up to live in areas like Fort
8 Simpson or Inuvik or wherever, would you be prepared to
9 recommend to Arctic Gas that they suggest something be
10 done by the government with regard to hunting regula-
11 tions to assist you in lessening this impact?

12 A Certainly we would be
13 discussing this with the various government agencies.
14 If the action on their part can help in controlling
15 this, we will be certainly appreciative of that help.
16 We don't see the problem as one that is going to cause
17 any difficulty. I think Mr. Trusty could comment on
18 some of the differences between what we see as con-
19 struction in Canada and the construction of the Alyeska
20 line in Alaska.

21 WITNESS TRUSTY: Just a brief
22 comment, Mr. Bayly. I think it is very dangerous to
23 make automatic interpretations from the Alaskan exper-
24 ience and apply them to the Arctic Gas project. One
25 very, very important factor that must be borne in mind
26 is that Alyeska is undergoing summer construction, there
27 are great difference, as you are well aware, in the
28 conditions in the north during summer and winter; we
29 will be undertaking winter construction. People aren't
30 prone to go wandering off into the wilderness to a

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1 stream, or to hunt and fish. One policy that we
2 can enforce is an absence of any casual transportation
3 for workers to use. The fact of not having a permanent
4 road near the right-of-way, these kinds of factors, in
5 our view, are very, very important and have to be borne
6 in mind whenever these comparisons are made.

7 Q If I can suggest to you
8 that these were some of the things that were attempted
9 in Alaska and did not work, and that is restricting of
10 transportation, albeit that there were permanent road
11 facilities close by, have you recognized these as
12 problems that may have to be coped with in a similar
13 fashion?

14 A Well, the point is that
15 in summer conditions a person who does have hours avail-
16 able can get off into the wilderness, they can pitch
17 a tent, do some hunting or fishing if they've managed
18 somehow to get around the camp regulations that apply.
19 That's much less likely to occur in the winter condi-
20 tions at camps.

21 Q Well, Mr. Trusty, you
22 will agree with me and with Mr. Williams, no doubt,
23 that the winter construction season includes sometimes
24 some very pleasant weather when game is starting to
25 move about in more accessible areas. Would that be
26 a fair statement?

27 A Well, I'm not an expert
28 on the temperature conditions in the north, so maybe
29 Mr. Williams can respond.
30

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CrossExam by Bayly

Q It's just this point,

Mr. Williams, that the construction season is not just
in those months when it is too cold to want to do
anything -- January and February, say, it will extend for
periods from freezeup to almost breakup, is that right?

WITNESS WILLIAMS:

A Certainly there can be
some very pleasant days in October and March in the
north, yes sir.

Q Thank you, Mr. Williams.

Now, if I can refer to page 26 of the prepared evidence,
you've said at page 26, close to the bottom of the page
on socio-economic factors relative to alternate corri-
dors, if I may paraphrase this, that -- it might be
safer to read it:

"The socio-economic analysis relative to the
prime route in Section 14-C, Exhibit 56, in
many instances refers to general effects of
industrial activity upon less developed
economies with emphasis upon gas pipeline
and related developments, and upon policies
which are to be adopted by a pipeline organi-
zation to aid further progress toward desir-
able social and economic goals in the areas
traversed."

Now, in light and perhaps Mr. Trusty or Mr. Hemstock,
because both have been to community hearings, would
like to comment on this, in light of your experience
in going to the hearings what I invite you to comment
on is the fact that the social and economic goals may
be far more complex than an industry or a project like

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1 the pipeline can hope to satisfy. Would that be a fair
2 statement?

3 WITNESS TRUSTY: I agree with
4 that.

5 Q And there may very well
6 be the need to reassess the social and economic goals
7 in light of what has been heard throughout this summer
8 in the Mackenzie region with regard to whether the
9 pipeline can satisfy those goals.

10 A Well, I'd go further than
11 that, I think, sir. I'd say that one has to assess
12 these kinds of goals not just in the light of what
13 people say but in the light of what they do and how
14 they've acted in the past and how they are likely to
15 act in the future. It's a very complex subject, I
16 agree.

17 Q All right, and would you
18 be prepared to say that further assessments should be
19 done before we can say that the pipeline companies are
20 prepared to say that they are assisting in the achieve-
21 ment of the social and economic goals of the people of
22 the region through which their facility intends to
23 pass?

24 A I think this kind of
25 assessment is an ongoing thing. It certainly is for
26 us. We are continuing research in this area, and hope
27 to bring more material to bear on Phase 4 than has
28 currently been put into the exhibits. We expect to
29 continue that research beyond approval, through con-
30 struction. We would hope that government agencies and

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1 other organizations involved in these questions in the
2 north would be doing the same thing. I think a key
3 word in this kind of area is flexibility and adaptat-
4 ion as we go along.

5 Q All right, and would it
6 be fair to say that some of the dangers of ascribing
7 social and economic goals to a project are that they
8 may be goals set by people other than those upon whom
9 the impact will be placed?

10 A Always a danger, yes sir.

11 THE COMMISSIONER: Their goals aren't
12 the same as those of the people who live in Hamilton,
13 Ontario.

14 A No sir, that's correct,
15 I agree.

16 MR. BAYLY: Q Assuming that
17 you wished employ as many northern peoples, both native
18 and otherwise in your project as possible, and assuming
19 that Mr. Hemstock's prognosis is a likely one that
20 there will be development in the delta, that there
21 will be development along the North Slope, and in the
22 Eagle Plain area, and just in terms of providing ongoing
23 employment opportunities for northern people, would it
24 be fair to say that to construct the trunk facility in
25 a different area -- and I'm referring to say the
26 Fairbanks or Fort Yukon corridors -- would spread the
27 employment out through more of the north other than
28 concentrating it in a specific area like the Mackenzie
29 Valley?
30

A Well, I don't quite

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1 follow that, sir. The implication of your question, it
2 seems to me, is that of a pipeline in one place has a
3 concentrated hinterland that it draws on for employment
4 and then if you move that pipeline to another place it
5 has a less concentrated, and I'd have to know why you
6 feel it would be less concentrated in one place than in
7 another.

8 Q Well, let me suggest this:
9 to you, Mr. Trusty, that there aren't enough people in
10 the north to construct the pipeline. You'd agree with
11 that?

12 A Agreed, yes.

13 Q Now there may not be
14 enough people in the northern part of the Mackenzie
15 region to even supply oil and gas workers for explora-
16 tion and producing facilities. Would that be fair to
17 say?

18 A If you define "enough
19 people" as enough people seeking employment --

20 Q That's what I meant, yes.

21 A -- agreed.

22 Q So you will, even with-
23 out a trunk line, very likely exhaust the resources
24 in the labor market who are interested in doing this
25 oil and gas work in either the pipeline or in the
26 producing and exploration work.

27 A No sir, I wouldn't agree
28 with that because I would argue that without the
29 pipeline there is -- well, in fact I would say a very
30 high probability that the level of activity in the

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1 Beaufort-delta area and other areas will decline, so
2 that there will be unemployment created as opposed to
3 exhausting the available labor supply.
4

5 Q All right, I think you
6 may have misunderstood me. I am assuming that for the
7 purpose of this question that a pipeline will be built
8 on one of the various routes that's on that map there,
9 there may be people in the Yukon who would like to work
10 in oil and gas either in terms of exploring or building
11 pipelines.

12 A Yes sir, I agree with
13 that. In that case, what you're saying, if I interpret
14 it correctly, is that by building the pipeline in a
15 different corridor you create employment in that corridor
16 during pipeline construction and operation, and you
17 still have the employment in the Mackenzie Delta-Beau-
18 fort area. Is that correct?

19 Q Correct, yes.

20 A I would agree with you,
21 but I would note that when we're talking about the
22 corridors in the Yukon that we have a much higher level
23 of employment here and we're much more apt to be then
24 encouraging some sort of transfer phenomenon where
25 people leave one job and go to another. So that the
26 net employment addition, if you like, of people resident
27 in the region is likely to be much smaller than it
28 would be in the Mackenzie Valley region.

29 Q All right. Now would you
30 be prepared to say whether you expect a parallel to the

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1 Alaska situation where no matter where you place it,
2 you're going to lure people into pipeline construction
3 because the wages are very high?

4 A That clearly is a danger,
5 yes sir. That has an effect on the job market and wage
6 levels.

7 Q All right, and that is --
8 do you feel that that is something that is unavoidable?

9 A This question ties to the
10 general question of inflationary effects and so on
11 in the economy, and my view is that yes, there is an
12 unavoidable consequence of a project of this nature.
13 The mitigating measure is to lessen the dependence on
14 regional employment, regional services and so on, and
15 there is a balance there, a trade-off that has to be
16 made, and it's not an easy one. People want to benefit
17 but at the same time there are costs associated with
18 having the opportunity to benefit.

19 MR. BAYLY: All right.

20 THE COMMISSIONER: That's the
21 other side of the coin, too. Am I mixing up Norman
22 Wells with Whitehorse?

23 MR. BAYLY: I'm sure the
24 people here hope not.

25 THE COMMISSIONER: Well, I
26 recollect someone, yes, it was Mr. Blair on Saturday
27 telling, a witness on behalf of Foothills, telling
28 people that the policy was to -- their policy would
29 be to use local contractors and seek to involve local
30 people in pipeline-related activities; and you've been

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1 pointing out, and I think that is to the extent possible
2 your own policy, you've been pointing out that the
3 other side of that coin, the inflationary side; is
4 that --

5
6 A That's correct, sir, it's
7 more than just an inflationary side. I would prefer
8 to say that our policy, the policy that we think would
9 be optimal for the region, and obviously this is a
10 very difficult area and everybody gets into the act,
11 including governments and so on, is to match the local
12 -- the use of local resources, be they human or business
13 or whatever, to the kind of ongoing markets that might
14 be anticipated. That's by far a safer consequence. It's
15 more than just inflationary. It's the effect on the
16 ability of communities to continue to provide their
17 own services and so on during construction, and I
18 don't think that it would be our intention or hope that
19 we would get into a situation where because of dictate
20 or for whatever reason, that we were draining those
21 resources away from the normal functions and the normal
22 patterns in the Territories.

MR. BAYLY:

23 Q All right. Is it realistic then, Mr. Trusty, following this up, to assume that
24 the building any pipeline is going to increase first
25 of all transfer from other pursuits to pipeline activities
26 to a certain extent because of the wage differences
27 and in addition, it creates a new load on certain
28 services that are provided by communities through
29 either their local, Territorial or Federal Governments.
30

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1 A No sir, I'm not quite
2 saying that. I'm not saying that it puts a new load
3 on local facilities and services. It clearly is the in-
4 tent of Arctic Gas to provide its own services and its
5 own facilities, and not directly put a load on those
6 communities to the extent that we can avoid it. What
7 I was saying is that if you attract people into pipe-
8 line employment who would normally have been providing
9 a service to the community, that may leave the community
10 in a difficult circumstance if there's no one to move
11 in and replace them in their old job. It's a different
12 thing than putting a load directly.

13 Q But you are prepared to
14 say that you're trying to attract local contractors and
15 if they're doing local contracts for community-based
16 things, they may not be available.

17 A If they take work with the
18 pipeline, that's right, it may affect their availability
19 to the community.

20 THE COMMISSIONER: And if they
21 over-capitalize to accommodate their local jobs and
22 to work for the pipeline as well, they may find that
23 the pipeline project is ended and they haven't amortized
24 their equipment and you have a boom and bust thing.

25 A That's right, sir. I
26 think those kinds of things can be mitigated by looking
27 at the kind of level of business activity that's apt
28 to exist after the pipeline. The pipeline, as I
29 mentioned earlier, isn't just construct a pipeline and
30 then everything ceases. We expect there will be a very

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1 increased level of economic activity and so markets
2 will be greater after the pipeline than before the pipe-
3 line, in our view, and therefore the business possibili-
4 ties will be enhanced. It's a question of trying to
5 match those and it's not an easy thing to do for the
6 pipeline company or the individual, ^{businessman} but it's something
7 that should be attempted, sir.

8 MR. BAYLY: Q Now, Mr. Trusty,
9 going again to the prepared evidence, and I address
10 this question to you, but Mr. Hemstock may wish to
11 answer it as well, page 28, the second full paragraph,
12 there is a sentence that says:

13 "Both the Fairbanks and Fort Yukon routes
14 involve pipelines which pass near Whitehorse
15 and Dawson, as well as other smaller communi-
16 ties in the Yukon, but do not involve as many
17 as the Mackenzie River Valley communities of
18 the Northwest Territories. More native people
19 are located along the prime and interior
20 routes than along the Fairbanks and Fort
21 Yukon corridors."

22 Now, there appears to be no follow-up to that paragraph
23 to suggest whether you would recommend going through
24 areas that have more or fewer native peoples, or more
25 or fewer communities. Could we have some reaction to
26 that?

27 A Yes sir. From an economic
28 point of view in terms of the employment question --
29 well no, let me broaden that and say from the broader
30

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1 social economic point of view an area that is more
2 mature and more developed is the Yukon, and can more
3 readily absorb some of the disruptions and impacts that
4 occur during construction. At the same time in a
5 sense the benefits that are produced in terms of employ-
6 ment generation and secondary effects are less valuable,
7 valuable in a kind of nebulous sense, in that an area
8 that is already mature, it's already developing, it
9 doesn't need the sort of economic shot-in-the-arm,
10 if you like, that's provided by a big project to the
11 extent that in this case the Mackenzie Valley region
12 does. My personal judgment is that the employment
13 creation possibilities of the project and the aftermath
14 of the project and the spin-off effects of the project
15 are more valuable in the valley than they would be
16 in the Yukon, and that it's worth absorbing those
17 impacts in the valley to create the benefits.

18 Q All right now, is it just
19 maturity, or is it a fact that people who are white and
20 may have come from Hamilton, Ontario, to use the
21 Commissioner's example, may also be more able to
22 absorb these kinds of impacts than Indians and Eskimos
23 who may have no experience or little experience with
24 these kinds of impacts?

25 A Well, sir, I don't
26 ascribe the ability to absorb impacts or adapt to
27 a particular racial group.

28 Q All right, I'm not talking
29 so much about racial groups as experience. There are
30 people who come from southern experience in the Yukon

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1 who are used to industrial society, if you don't want
2 to put it on a racial basis; there are other people
3 who have been hunting and trapping either still or a
4 short time ago whose experience is less industrial.

5 A Well, that's an awkward
6 way of putting it but it may be true. That clearly then
7 leads to all sorts of complications in terms of, you
8 know, the migration patterns, the Yukon versus the
9 Territories, and who the people are and how long they
10 have been here. I would much prefer to note that the
11 Yukon itself has experienced this kind of development
12 and that certainly does affect its ability to absorb
13 future developments. That, of course, leads to the
14 next point, that as the valley experiences development
15 its ability to adapt and absorb impact will increase.

16 Q And would you predict
17 it will become more socially like the Yukon then?

18 A It could.

19 Q Do you think it will?

20 A I don't have a view of,
21 you know, how it will go. Change is what people make
22 of it and what they choose to make of it.

23 Q So you haven't gone to the
24 extent of predicting what the result of the impacts
25 will be.

26 A I think in broad terms
27 the result of the impacts will be a movement in the
28 valley area toward an economic and social system, an
29 economic system that's more akin to southern, and there-
30 fore more akin to Yukon and so on. In other words

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1 it will be a drawing together of the Territories and
2 the rest of the economic fabric in the nation.
3

4 MR. BAYLY: All right.

5 THE COMMISSIONER: So then the
6 north would then become more like the south.

7 A In a sense, yes sir. Now
8 I add that --

9 Q Well, we're not being
10 pejorative about this, if you will forgive me, but that
11 is essentially what you envisage in a socio-economic
12 sense.

13 A Yes sir. That does not
14 mean to imply that every individual or groups of indi-
15 viduals have to follow that path. There is clearly
16 opportunity to make a choice.

17 *Commissioner* Q What about a place --
18 a lot of this will come up in Phase 4 and we're anti-
19 cipating that, I suppose, but Mr. Bayly says it
20 depends on experience and customs of people. In
21 Newfoundland they apparently closed down the out ports
22 and tried to persuade the fishermen to become industrial
23 workers either in pulp mills or as part of large fish-
24 ing and packing organizations. Did you ever have an
25 opportunity to study the outcome of all of that? Did
26 they become more like Hamilton, or did they --

27 A Well, sir, no, I haven't
28 had the broad experience with the question -- with this
29 question in Newfoundland. I have had a lot of experience
30 with it in the Maritimes in general, and my observation
would be that the Maritimes have moved more towards the

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1 kind of economic base that you find in say Central
2 Canada, in Ontario; but it has a very distinct cultural
3 and social style to it, a style that's very much dif-
4 ferent, so that it's moved in economic terms, it's moved
5 in the sense of opportunity and the ability of people
6 to select vocations, but at the same time they maintain-
7 ed the pattern of life and the style of life that's
8 different, in my view.

9 MR. BAYLY: All right.

10 Q Now, you have, at page
11 30, commented on the deterioration of the economy of
12 the Mackenzie Valley, and the fact that in your opinion
13 the pipeline project will give it what you call that
14 shot-in-the-arm that will assist it to get started on
15 what you feel will be an ongoing upward economic
16 movement. Now, I would like your comments on what
17 I will submit to you is at least a partially parallel
18 situation in Alaska where people are worried that this
19 shot-in-the-arm was a bit more than they were prepared
20 to take. Do you feel that where you have an economy
21 like the one in the Mackenzie Valley you will be able
22 to accommodate this kind of development with the kinds
23 of social disruption that have really not only changed
24 the way of life, as you put it, but also put a tremend-
25 ous demand on services that nobody expected to have
26 demands on them in Alaska?

27 A No sir, not with anywhere
28 the same degree. I won't deny that there may be some
29 of the same kinds of disruptions and impacts. The situa-
30 tion in Alaska was greatly affected by a couple of

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1 things: (1) the false~~boom~~, a prolonged period when
2 job-seekers and other people were anticipating pipeline
3 construction at any moment, after which some activity
4 had already started, the stockpiling activities and so
5 on. A lot of people came to Alaska in anticipation of
6 work. Those people came to very well-established commun-
7 ities in the form of Anchorage, and particularly Fair-
8 banks. (2) so that was one factor. We have a very
9 long-drawn out period where construction is apt to
10 start at any time and there's a steady stream of people
11 flowing into the state. Secondly, the state is far
12 removed from the lower 48, and you don't have jumping
13 off places as we would in Canada to send construction
14 workers into camps and out to the lower 48 in the case
15 of Alaska, so you have workers moving there with their
16 families, putting pressures on the housing market and
17 on the other facilities. That again is a very different
18 circumstance than we would anticipate in the Territor-
19 ies.
20

21 Q All right, let's take a
22 couple of the things that you have said. To start
23 with, you must then not anticipate a long period of
24 anticipation.

25 A We're anticipating, sir.
26 It's a different circumstance, it seems to me, to start
27 an activity and have it well known that it's started, and
28 then have it stopped and sit dormant for four years
29 or three years, then to go through this very long
30 regulatory process that we have to go through, and then

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1 start and do it. It seems to me those are very different
2 things.

3 Q O.K.

4 THE COMMISSIONER: It would only
5 be comparable if you got approval, stockpiled pipe
6 throughout the valley, and then you had to stop for
7 four years.

8 A Yes, and in that case
9 it would be comparable only in the one sense, of
10 sort of buildup and therefore some influx of workers
11 and so on, but it still wouldn't be comparable in the
12 sense of people moving to the area with their families
13 and taking housing and so on.

14 MR. BAYLY: Q If I were to
15 suggest to you that this sort of thing has already
16 begun in areas like Hay River, you would disagree with
17 me?

18 A No sir, I know well that
19 there's been some activity of that nature happen in
20 Hay River and Yellowknife, people seeking jobs.

21 Q All right, now the other
22 question is the one you have raised about not anti-
23 cipating workers coming in with their families. Now
24 I'm suggesting to you as a person who is studying these
25 social and economic situations that certain problems
26 do arise where you have a large number of men without
27 their families, whether they have impact on the commun-
28 ities or just impacts on the men themselves, their
29 habits, what they turn to because they've been deprived
30 of their families during the working time, these are

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1 problems, Mr. Trusty, that I submit to you will very
2 likely occur in the construction of this pipeline and
3 may be unavoidable. Would you agree with that?

4 A Well, sir, I'd much
5 prefer that we go into this question in Phase 4. It's
6 a big question, it's a question which needs to be
7 explored in some detail, and it seems to me that to give
8 a quick answer at this point in time without the full
9 exploration of the problem would be misleading and
10 wouldn't really serve the Inquiry's purpose.

11 Q All right, let's do it
12 from a corridor point of view then, because I think I
13 can get it in that way. Given that the Fort Yukon
14 and Fairbanks corridors are closer to an area where
15 people who have been employed in the pipeline activities
16 may well just shift over from one pipeline to another,
17 some of them with their families, do you anticipate
18 if that happened that you would still try and enforce
19 the kind of regulations you planned to have men-only
20 camps and to fly people out and replace them with
21 others at that time?

22 A Yes sir. We would have
23 the same camp policies.

24 Q All right. Have you
25 examined the effect of that on native peoples who might
26 seek employment on the pipeline and their being removed
27 from their families for the purpose of doing this
28 employment?

29 A Yes sir, we've give
30 that a lot of thought. It's a difficult question. On

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1 the one hand the desire to have equitable treatment and
2 in fact for native people to give them preferential
3 treatment in some respects when it comes to hiring and
4 training and so on, and on the other hand to give them
5 benefits, if you like, in terms of their camp life,
6 their access back to their communities at different
7 times than the other workers is to introduce an inequity,
8 it's not an easy question at this point in time. Our
9 view is that we do have to have some flexibility with
10 respect to the native people. If we're working near
11 a community it seems to us that we can't prohibit
12 those native people from returning to their community.
13 Now that's a difficult question. It's again a question
14 that I think needs to be explored in Phase 4 in a lot
15 of detail.
16

17 Q All right, so will it
18 be fair to say that you're not prepared at this time
19 to tell us what you would recommend as a policy to
20 Arctic Gas to follow under these circumstances?

21 A That's fair.

22 Q It's nicer than saying
23 you don't know yet. Now, on page 33 as well you
24 have talked about the benefits of this facility, and if
25 we can go over the kinds of benefits in the route that
26 you have chosen as opposed to a route that goes to
27 what you call a more mature area, that is either the
28 Fairbanks or Fort Yukon corridor, those benefits are
29 cheaper construction costs, and therefore cheaper gas
30 to consumers at the south end of the facility; closer

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1 ,proximity
2 to existing and future potential supplies of fuel;
3 and easier logistics and perhaps cheaper logistics from
4 the point of view of transportation of certain materials;
5 and better control over the labor force and the way
6 it's brought in and out of the north for the purpose of
7 this construction. Would this be fair to say -- and
8 I'm not addressing this to any particular member so
9 maybe Mr. Hemstock can field that one -- but those
10 are what you have said in your canned evidence are the
11 benefits of using the prime route over the other routes.

12 A Can I ask you to repeat
13 the last of those points, sir?

14 Q The last point being that
15 you would anticipate having more control over being
16 able to move your labor force, the bulk of it in and
17 out on a regular basis from a point like Edmonton to
18 the various camps along the route, than you might have
19 close to Alaska or close to big centres like Whitehorse
20 where people might just move in and establish residences
21 there.

22 A First of all I don't
23 think we said in our exhibit material anywhere that
24 we anticipate more control in the prime route case
25 than in the alternative corridors cases. I would say
26 that the level of control that we would tend to exercise
27 would be the same. At the same time I would acknowledge
28 that when the pipeline moves close to large centres like
29 Whitehorse or Dawson that there is a greater problem
30 with controlling than camp activities if the camps are
located close to those communities.

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1 Q And I don't want to lose
2 track of the rest of the question; are the other bene-
3 fits, as I have described them, the main reasons for
4 choosing the prime route over the other corridor routes,
5 in your opinion?

6 A Yes sir.

7 Q And in the opinion of
8 the panel? And the fact that say the Yukon Territory
9 and parts of Alaska may be more willing at least, from
10 what we have seen and less worried and frightened of
11 the impact socially and economically of the pipeline,
12 is something that you either disagree with or are
13 prepared to put up with for the purpose of still
14 recommending that prime route.

15 A Well, I'm not sure I
16 can respond to that, sir.

17 Q All right, let me put
18 it this way then. You know from the community hear-
19 ings in the Mackenzie Valley that some people don't
20 want the pipeline or at least say so.

21 A Yes sir.

22 Q You know that some people
23 appear to be frightened of massive development, which
24 this definitely is. Is that fair?

25 A Yes sir.

26 Q That in itself, in your
27 opinion, is not enough of a reason for you to recommend
28 going to an area which is more mature, more socially
29 able to absorb the impact.

30 A Well, first of all, sir,

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1 I would say that there may be just as many people in
2 the Yukon Territory who would have the same views.
3 That's the reason for my hesitation and secondly I
4 would answer that we would still prefer the prime route.

5 Q All right. Now, on page
6 35 you stated in the top paragraph that,
7 "The indirect effects of a pipeline along
8 either route,"

9 and I think you probably mean by that all corridor
10 routes,

11 "could be expected to be similar overall, and
12 in neither case would significantly adverse
13 effects upon the social system of the Canadian
14 Northwest be expected."

15 Now --

16 A Sir, if I can interrupt
17 you, that sentence, the word "either" is correct.
18 It's comparing the prime to the interior.

19 Q All right. Now, in
20 light of the experience that you have had, Mr. Trusty,
21 this summer in hearing the reactions of various
22 communities, do you still recommend that there won't
23 be any significant adverse effects upon the social
24 system of the Canadian Northwest, or do you think
25 this is a matter that requires further study or further
26 assessment?

27 A Are you referring to this
28 comparison of the prime and interior routes, sir, or
29 are you asking just a general question about that
30 adverse effect?

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1
2 Q No, I'm referring to the
3 prime and interior routes because you have said that
4 no matter which of those you take, in the Canadian
5 Northwest -- and I'm assuming that's in the Northwest
6 Territories and perhaps the Old Crow region, there
7 won't be any significant adverse effects on the social
8 system of those areas.

9 A I would say, sir, that
10 I would think that the prime route overall would be
11 better from a socio-economic point of view than would
12 the interior route.

13 Q I know that because you
14 said it before, but what I'm really asking is whether
15 this statement, in light of your experience this
16 summer, is still one that you're prepared to stand by
17 that there wouldn't be any significant adverse effects.
18 I realize you say there are possible really beneficial
19 effects, and I'm prepared to accept that from you in
20 light of your analysis; but I want to know if you will
21 go as far as to agree with me that there may be some
22 significant adverse effects that will have to be coped
23 with?

24 A Well, there certainly
25 may be. I won't disagree with that. Why I am having
26 difficulty is because I find it very difficult to go
27 from what people say to a broad generalization about
28 the effects that will actually occur.

29 Q All right, well let's
30 take another --

A It seems to me that's

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1 more in the Commission's area than in mine.

2 Q Let's put it in the
3 negative, though, because it's in your evidence.
4 Would you be prepared to say that at this point that
5 you can't guarantee that there won't be any significant
6 adverse effects upon the social system of the Canadian
7 Northwest of this project?

8 A I'll agree.

9 MR. MARSHALL: I think that's
10 something really not in this witness' control.

11 MR. BAYLY: I realize that.
12 But he is an expert and can give his opinion on it.

13 THE COMMISSIONER: All right,
14 he's given his opinion. Suppose he said he could
15 guarantee it, what would that have meant, that we could
16 with glad heart wind up the Inquiry?

17 MR. BAYLY: Q To be fair to this
18 witness, all I am asking him for, Mr. Commissioner, is
19 a professional opinion based on not only what he did
20 beforehand but what he has heard during the course of
21 the Inquiry.

22 THE COMMISSIONER: He's given
23 that.

24 MR. BAYLY: So I'm happy.

25 Q Now, just before we
26 finish, in referring Dr. Banfield to the assessment on
27 fish resources of alternate corridors, I extracted the
28 following from your evidence and I'd like you to tell
29 me whether this is what in effect you had said, or if
30

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1 you wish to expand upon it. You said that the person
2 that you were relying on and the person upon whom
3 most people relied in assessing fisheries resources in
4 this area, governments and others, is Dr. McCart. Is
5 that correct?

6 WITNESS BANFIELD: Will
7 you just repeat what area you're describing?

8 Q I'm talking about the
9 Fairbanks corridor, this was something that was brought
10 up by Mr. Anthony, I believe.

11 A No, then I thought I was
12 referring specifically to the crossing of the Brooks
13 Range by the Fairbanks corridor, and in that particular
14 area Dr. McCart is the expert.

15 Q He's the expert. You
16 also said on your evidence on that area and on the
17 question of fisheries, that Dr. McCart -- you couldn't
18 refer to any studies of Dr. McCart on that specific
19 area at that time. Have you been able to do so
20 since? You referred to his opinion, but I believe
21 at that time in your evidence you couldn't refer to
22 any specific studies.

23 A I don't really use my
24 memory to retain detail that's published and reported
25 elsewhere. There's a great list of his reports in the
26 Biological Report series, and dealing with that
27 particular area there are a number of his reports
28 referred to in the Department of the Interior environ-
29 mental impact assessment, El Paso documentation, Alyeska
30 -- its rather universally listed.

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1
2 Q Are you satisfied that
3 the information you have received from his reports
4 is adequate to have allowed you to assess the impact
5 on fish resources of crossing the Brooks Range?

6 A I'm reading from this
7 report that is mentioned in the appendix, the first
8 report, "an assessment of alternative gas pipeline
9 corridors in relation to potential damage to fish
10 populations" by Aquatic Environments, which is Dr.
11 McCart's firm, and on page 5 he has listed the criteria
12 by which he compared these various corridors, and it's
13 very short and I rather briefly and inadequately covered
14 the criteria in my replies to Mr. Anthony. These criteria,

15 "The proportion of the corridor parallelling
16 existing roads, the proportion of the corridor
17 parallelling streams,"

18 I mentioned that one,

19 "the number of stream crossings,"

20 I mentioned;

21 "the number of lakes associated with the route,"

22 I overlooked that one,

23 "any other relevant fish information which is
24 published data on life, history, distribution,
25 management of fisheries,"

26 and as a summary of that data, a summary of the
27 information which he collected and subjected to those
28 criteria, he concluded in this report that the prime
29 route was the preferable one from the point of view
30 of fisheries.

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1
2 Q All right, that was the
3 way he did his analysis following those?

4 A Yes, there are a number
5 of tables in which mileages, stream crossings, this
6 information is compared for all the various routes.

7 Q Now just then to recap
8 the reasons that you prefer the prime route, secondly
9 the interior alternate route, to the other distinct
10 corridors, they're based on cost, gas supply in the
11 area, the inputs you expect to be able to make to the
12 economy of the region which you feel needs some
13 input, and fewer impacts both environmentally and
14 socio-economically upon the Mackenzie region rather
15 than on the other regions. These are the reasons that
16 you wanted to go down the prime route and wanted to
17 avoid if at all possible going down either the Fort
18 Yukon corridor or the Fairbanks corridor, is that a
19 summation of what we're received in evidence from you?

20 WITNESS TRUSTY: Yes sir,
21 except for the phrase "fewer impacts", I don't quite
22 follow that one. I don't think that we have put that
23 into evidence that we think there would be fewer impacts
24 in one route as opposed to the other.

25 Q All right, just expanding
26 on that do you mean that there will be more, or that
27 you're not interested in the numbers you're interested
28 in the seriousness of the impacts?

29 A Well, I think that our
30 view basically is that both impacts will be similar
overall, apart from the ones you mentioned and that I

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mentioned of the employment creation effects and so on
in one area that needs it more than another area. I'm
not referring to environmental effects here, I'm refer-
ring to the economic impacts.

MR. BAYLY: I have no further
questions.

THE COMMISSIONER: Thank you,
Mr. Bayly. Mr. Goudge?

CROSS-EXAMINATION BY MR. GOUDGE:

Q Sir, I think something
happened to my time estimate of last night, it's a
little more than two hours, but I'll try and be as
brief as I can.

Mr. Hemstock, following Mr.
Bayly's question , I judge your evidence to take
this form, you've given us a number of factors that
you used to compare the five routes that are before
us, and you come up with the conclusion that on the
basis of at least those factors, the ones Mr. Bayly
recited, the prime route is the best.

WITNESS HEMSTOCK: That's
correct.

Q The interior route would
be the next best.

A Yes.

Q Do you rank the Fort
Yukon and the Fairbanks routes in any particular order
on those criteria?

Dau, O'Rourke, Williams, Clark,
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Cross-Exam by Goudge

1
2 A No, I think we have con-
3 flicts in our ranking there. It is pretty obvious
4 from the evidence which we heard yesterday that the
5 Fort Yukon route is one in which we would expect much
6 more severe environmental impact than the others. But
7 on the other hand, of course, it is a great deal
8 cheaper than the Fairbanks route, and so there is a
9 balance in there, and at the moment I don't think I
10 could rate those one against the other.

11 Q I see. Both less desir-
12 able than the prime route and the interior route?

13 A Yes.

14 Q Now in making this
15 evaluation or this comparison, I take it, I understood
16 your response to Mr. Templeton last night to be that
17 you didn't quantify any of the factors that you used
18 for comparison.

19 A Well, in the engineering
20 area, of course, the factors were quantified. There
21 were such things as the dollars involved, the possi-
22 bility or numbers of people and so on.

23 Q Yes, put it this way, you
24 didn't weight any of the factors as one against the
25 other, economics being ten, as he said, socio-economics
26 factors being one.

27 A No, we did not attempt
28 that, sir, in evaluations.

29 Q There's no doubt, I
30 take it, that in terms of feasibility, though, all five
31 routes with perhaps the exception of the offshore route

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Goudge

1 could be constructed.

2 A Yes, I think that's
3 correct, and I believe that we said that we think the
4 offshore route could be constructed, too. The difficulty
5 there is the --

6 Q Mr. Dau, are you prepared
7 to state your opinion as to whether it could or could
8 not be built?

9 WITNESS DAU: It could be
10 built, but whether it could be built in the time frame
11 and within the cost estimates or so on that we've talked
12 about, I'm not sure of that; and the main concern, of
13 course, with the offshore route is the repair after
14 some sort of a disaster, the continuity of service.

15 Q Now in terms of ranking
16 these alternative routes, Mr. Hemstock, if the prime
17 route is foreclosed because of some decision in the
18 United States, for example, I take it you'd then go
19 to your second choice, which is the interior route.

20 WITNESS HEMSTOCK: Yes, we
21 have shown that as our second alternative.

22 Q Now if there was a
23 decision in the United States that foreclosed that as
24 well, a decision for example that required the Alyeska
25 right-of-way to be used, you would then go to one
26 of the other two routes, is that so?

27 A No, I think that that is
28 not necessarily so. We would -- our application has
29 been for the prime route, with the alternative, the
30 first alternative through the mountains. We would

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Goudge

1 certainly have to very seriously reconsider whether
2 either of the other two could be feasibly built.

3 Q Or whether you would
4 undertake --

5 A Or whether we would
6 undertake that construction.

7 Q I see. Now dealing
8 with the first criteria that appears in your evidence
9 location relative to areas of potential gas
10 reserves, you recited some figures last night from the
11 Department of the Interior study indicating certain
12 potential reserves for the Mackenzie Delta-Beaufort
13 Basin, and certain other potential figures for the
14 Eagle Plain Basin. Those are the first two most
15 important areas in Canada. You've had a third in
16 Canada and I wonder if you have any figures for the
17 potential reserves in the third area?

18 A Yes, there are other
19 sedimentary basins listed in this table that we referred
20 to yesterday. The one which is ranked second here
21 in this particular table is the Banks unstable coastal
22 margin area, which would be Banks Island, and the
23 offshore area surrounding Banks Island.

24 THE COMMISSIONER: Second to
25 the Beaufort Basin-Mackenzie Delta?

26 A In this particular ranking,
27 yes.

28 MR. GOUDGE: I should ask you,
29 I suppose, Mr. Hemstock, if that is the ranking you
30 relied on, if those are the figures that you relied on

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Goudge

1 in rating the Beaufort Basin first, and the Eagle Plains
2 second, and the provincial areas lower down the Mackenzie
3 third.

4 A I'm afraid that I can't
5 answer that. My understanding is, though, that we did
6 not take into account in any of our analyses of
7 potential reserves the possibility of gas supply from
8 Banks Island. It is a good distance offshore and I
9 am not aware that we considered that.

10 Q I see.

11 A The other areas are a
12 very small area near Old Crow, a very small potential.

13 THE COMMISSIONER: That's
14 Eagle Plain?

15 A No, it's a smaller
16 area.

17 MR. GOUDGE: Q What is the
18 figure for Old Crow?

19 A It's .072 Trillion
20 cubic feet potential, or a very small volume of
21 sedimentary rock in there.

22 THE COMMISSIONER: So that's
23 somewhere near Old Crow, is it?

24 A Yes.

25 Q And Eagle Plain you
26 gave us yesterday at 5.7 trillion?

27 A 5.3 trillion.

28 Q 5.3 trillion.

29 A And the next area here
30 that I see is the Peel Plateau which I think Mr.

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty,
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Williams outlined in the map yesterday, and that has
a larger potential. It's shown here as 7.3 trillion
cubic feet.

MR. GOUDGE: So that's in fact
greater than what is shown in the Eagle Basin.

A Yes sir.

THE COMMISSIONER: And the
Mackenzie Delta-Beaufort Basin, according to the figures
you gave us yesterday, was 64 trillion, wasn't it?

A Yes. These authors have
chosen in their listing to include Banks next, and
then they have a column where they've added those two.
In other words they consider them in a general area?

Q Well, Banks is considered
part of Mackenzie Delta-Beaufort Basin?

A It's listed separately
but they have totalled those two.

MR. GOUDGE: Is the 64 trillion
cubic feet inclusive of the Banks potential?

A No.

Q I see. 64 trillion cubic
feet, to be clear then, relates only to the Mackenzie
Delta-Beaufort Basin.

A Yes sir.

THE COMMISSIONER: What figure
do they give for Banks?

A 11.4 trillion.

MR. GOUDGE: Q And beyond
the Peel Plateau, what's the next that relates to the

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Goudge

1 pipeline area?

2 A On the map it's shown
3 as the Anderson Plain, and it's called here the
4 Anderson Craton and it's a very large area which
5 extends from the Anderson River down to the Mackenzie
6 and south, it narrows out about Norman Wells. I think
7 it's also on the map, is it, Mr. Williams?

8 Q It shows on the map, I
9 think, Mr. Hemstock, perhaps you could have a look
10 at the map and see if I've got it right, as narrowing
11 just south of Fort Good Hope.

12 THE COMMISSIONER: We're all
13 looking at the same map, are we?

14 A Yes, that's correct, yes.

15 MR. GOUDGE: And I take it,
16 to be clear, that the areas described in that table
17 correspond to the areas shown on your map; those are
18 common reference points, is that so?

19 A Yes, they would compare
20 very closely.

21 Q And what is the figure
22 for the Anderson Plain area?

23 A The potential recoverable
24 there shown as 1.4 trillion.

25 Q 1.4 trillion cubic feet?

26 A Yes.

27 Q And is there any further
28 showing for any of the areas on the map filed with
29 Section 14-E? For example, the Mackenzie Plain.

30 A There are others here,

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Goudge

1 but I think that they are not located on our map.

2 Q And were not included in
3 your evidence relating to third ranking provinces?

4 A No sir, we'll check that
5 but I believe that's correct.

6 THE COMMISSIONER: Well, the
7 others on this map are the Horton Plain, Colville Hills,
8 Great Bear Plain, Great Slave Plain, the Liard Plateau,
9 and the Richardson Mountains, and a portion of the
10 Kandic Basin. I'm speaking of the petroliferous areas
11 north of 60.

12 A There appears to be a
13 little difference in this table with our map. The
14 next listing here in the table is the Tathlina Craton,
15 and that is described here as the area south-west of
16 Fort Simpson, and it would --

17 M R GOUDGE: Would that appear
18 as part of the Great Slave Plain on that graph?

19 A Probably and including
20 the Liard Plateau, I would think; and again we would
21 have to check to make sure that that is proper.

22 Q I wonder, just to shorten
23 it, Mr. Hemstock, if Mr Marshall might agree to have
24 you undertake a task of preparing potential reserve
25 figures for each of the areas outline d on your map
26 in Section 14-E --

27 A I think that that would
28 be --

29 Q -- relating to the
30 Mackenzie Valley?

Dau, O'Rourke, Williams, Clark,
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A Yes, that would be fine.

THE COMMISSIONER: What figure
do they give for that last one, that last area south-
west of Simpson?

A It is one of the larger
areas, it has a potential of 11.7 trillion cubic feet,
with 3.7 identified or proven.

MR. GOUDGE: Which one is that,
Mr. Hemstock? I'm sorry, I didn't hear you.

A The Tathlina Craton
on which we believe is part of the Great Slave Plain
and the Liard Plateau on the map.

THE COMMISSIONER: Well, you're
up to 100 trillion, I think, now for the north of
60. Just rounding it off.

MR. GOUDGE: Q Are any other
areas besides the last one you mentioned and the
Mackenzie Delta-Beaufort Basin, ^{areas} in which there are
proven reserves on that table? Or is the rest
all potential?

A There are proven reserves
of oil, of course, at Norman Wells. This table lists
that in the Anderson Craton 60 million barrels.

Q What about proven reserves
of gas? Are there any?

A There is no other listing
of -- did we give you the Tathlina Craton

Q Yes, you did.

A Yes.

That's all.

Dau, O'Rourke, Williams, Clark
Hemstock, Banfield, Trusty
Cross-Exam by Goudge

1
2 Q Tahlina Craton and the
3 Mackenzie Delta-Beaufort Basin are the only two areas?

4 A Yes sir.

5 Q I take, though, there is
6 no doubt that exploration permits are being granted
7 currently by the Federal Government for this entire
8 area?

9 A I'm not sure that there
10 is activity over the entire area.

11 Q You just don't know that?

12 A I don't know.

13 Q Now, let's take as an
14 example and assume with me that the Fairbanks corridor
15 is the ultimate route of the pipeline, and include in
16 that the spur to the Mackenzie Delta. Do you have
17 any indication or would you have any opinion as to
18 how the Mackenzie Delta-Beaufort Basin additional re-
19 serves would be brought into that system when they
20 were developed? What route, do you have any idea of
21 that? Would it be a simple extension of the gathering
22 lines, or would it be done some other way?

23 A You're speaking of the
24 reserves in the Mackenzie Delta --

25 Q Mackenzie Delta-Beaufort
26 Basin.

27 A I would think it would
28 be an extension of lateral lines to the specific
29 field locations from the end of the main trunk line,
30 much like we have indicated on our map.

Q I see. Is it fair to

Dau, O'Rourke, Williams, Clark,
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1 say that any line along the coast that taps that
2 future reserve would need go so far only as the edge
3 shown on your map of the Mackenzie Delta-Beaufort Basin
4 but not beyond, it needn't go all the way across
5 the coastal plain.

6 A To the west?

7 Q Yes.

8 A I think should that
9 occasion arise, it would have to be studied on its own
10 merit. I suppose one could conceive of a condition
11 where oil was discovered offshore the Alaska coast,
12 and it might prove to be better at that time to bring
13 it in through the Canadian trunk system rather than
14 shipping it west to Prudhoe Bay and then back east
15 again to markets in the United States.

16 Q I see. You don't then
17 hold the opinion that any gas discovered in the future
18 offshore Alaska would be brought onshore in Alaska, and
19 transported to Prudhoe Bay.

20 A I'm afraid it's just
21 speculation on my part, but I could see no reason
22 why that gas wouldn't take the most economic and the
23 best route to market at that time, which might be the
24 Canadian route.

25 Q Dr. Clark, maybe I could
26 ask you just a few questions about geotechnical
27 comparisons between the routes. I take it from your
28 evidence that three factors at least appear important
29 when comparing these routes -- the length in continuous
30 permafrost, the length in discontinuous permafrost, and

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Goudge

1 the length of each route in mountainous terrain.

2
3 WITNESS CLARK: Yes sir.

4 Q Are there any other
5 factors that go into a geotechnical comparison?

6 A Well, we listed in
7 previous evidence the four most important considerations
8 to be potential for slope stability, potential for
9 frost heave, the nature of river crossings, and the
10 requirements for drainage and erosion control.

11 Q I take it you have no
12 mileage comparisons using those four criteria for the
13 various routes?

14 A No sir. We have compari-
15 son of numbers of slopes over three degrees, for
16 instance, for the interior and prime route, but not
17 for the other three.

18 Q Yes, potential for frost
19 heave, for example, would it be possible to measure
20 number of miles exposed to that risk for the various
21 routes?

22 A It would be possible, I
23 believe, yes.

24 Q Is it true that or
25 would you agree that the prime route might win that
26 contest?

27 A There are many more
28 miles of discontinuous permafrost in unfrozen soils
29 along the alternative routes, but it's quite possible
30 that many of those miles could be in what we would

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Hemstock, Banfield, Trusty
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1 consider soils that wouldn't be frost-susceptible or
2 with fairly low shut-off pressures, and what you sug-
3 gest as being possible, yes, I would agree with you
4 there it would be possible. I don't have personally
5 information on that, though.

6 Q You're not prepared to
7 go so far as to say it would be the case?

8 A I don't have a basis to
9 say it. We could make that type of analysis, but
10 we haven't.

11 Q Dealing with the figures
12 that you have supplied, is it possible for you to
13 break out of those figures the miles for each route
14 that occur in Canada, and in particular north of 60
15 in Canada?

16 A I couldn't at this moment,
17 no.

18 Q It's possible, however?

19 A Oh yes.

20 Q It's not a difficult
21 task?

22 A I don't believe it would
23 be a difficult task.

24 Q Perhaps you would be good
25 enough to supply us with that at some future date.

26 A Yes, we will. I take it
27 sir, so to be clear on this, you're asking for the
28 miles within continuous permafrost zone in Canada for
29 each route,
30

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Goudge

Q North of 60.

A North of 60, fine, I
understand.

Q Now, do you have any
opinion, just for example, as to what percentage of
the 850 miles of mountainous terrain in the Fairbanks
corridor would fall in that category?

A I believe there would
be less than 50%. Perhaps Mr. Williams is closer to
the map and could give a closer estimate of that.

Q Is that a ball park
figure, Mr. Williams?

WITNESS WILLIAMS: I would
think it's 50% in Canada, yes.

Q Now, would you be prepared
Dr. Clark, to on the simple basis of geotechnical
factors, rank the Fort Yukon and Fairbanks routes one
against the other?

A I'd be prepared to under-
take the work to do that ranking, but not at this
moment, no.

Q I see. I won't ask you
to do it, but let me ask you to tell me what that would
involve if you did do it.

A Primarily the four --
looking at it from the point of view of the four
aspects that I mentioned, the nature of the rivers
to be crossed, the amount of unfrozen terrain relative
to the last point of cold flow, in other words the

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Goudge

1 potential for frost heaving, the nature of the slopes,
2 type of terrain, the possibility of slope problems,
3 but it's really difficult, I'm sure you appreciate, to
4 do this on a map to the scale on which we've laid out
5 these routes. For instance, the pipeline would main-
6 tain some minimum separation from the highway and we
7 would have to look at air photos to see where that
8 would -- what type of terrain that would put us into.
9 I'm sure the highway has selected the most preferable
10 terrain where it has gone through, and as a result of
11 that we might have to be in sloping ground if we were
12 to maintain the separation, a desirable separation.

13 Q Yes. Would you be
14 prepared to add to your four factors of comparison a
15 fifth factor, namely, previous engineering experience,
16 existing terrain knowledge, is that a factor that
17 permits a geotechnical comparison of routes?

18 A It's not in the same
19 category, really, as the four factors. I mention or
20 reiterate those four factors that we introduced
21 before as being those that we consider most significant.
22 Certainly there is more experience along the Fairbanks
23 corridor, with civil engineering works, and with the
24 performance of the highway.

25 Q Very substantially more
26 experience.

27 A Yes. I don't think there
28 was a great deal of experience when that highway was
29 built.

30 Q No, but it exists and

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Goudge

1 serves as experience, you'd agree with me?

2 A Yes.

3 Q You're not prepared to
4 agree that that constitutes an important criteria for
5 choosing on a geotechnical basis?

6 A Not really, because I
7 think much of that experience is applicable to perma-
8 frost terrain in the prime route, in the same way that
9 much of our research work that we have carried out
10 on frost heave, for example, slope stability analysis
11 would be equally applicable on any of these alternative
12 routes.

13 Q I see. Mr. Williams,
14 on the construction end of things, your evidence indi-
15 cates that summer construction will be used in certain
16 mountainous areas of the interior, Fairbanks and Fort
17 Yukon routes. I understood you correctly, did I not?

18 WITNESS WILLIAMS: Certainly
19 we have indicated in the application that we propose
20 some summer work in the Brooks Mountains on the
21 interior route, and with the rather -- well, considerab-
22 ly less extensive study of the Fairbanks and Fort
23 Yukon Territory we feel that parts of those routes
24 lend themselves to summer construction.

25 Q No part of the interior
26 route in Canada is proposed to be built during the
27 summer, is that so?

28 A That's correct.

29 Q Yes, you don't propose
30 to build any part of the interior route through the

Dau, O'Rourke, Williams, Clark,
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Cross-Exam by Goudge

1 Richardson Mountains in the summer?

2 A No sir.

3 Q Just out of curiosity,
4 why would you see yourselves going through the Brooks
5 Mountains in the summer, but not the Richardson Mounta-
6 ins?

7 A In my opinion, the
8 Richardson Mountain crossing on the interior route
9 has some of the meanest terrain in any of the areas
10 that we have looked at, particularly the east flank
11 of the Richardson has a skin of soil over bedrock that
12 is high ice content. The older seismic lines in that
13 area show a fair bit of erosion. I think that it
14 lends itself to less possibility of disturbance and
15 consequential maintenance problems if it's done in the
16 wintertime.

17 Q As to the Fort Yukon and
18 Fairbanks routes, do you propose summer construction
19 for any of the Canadian parts of those two routes?

20 A Yes sir. I don't have
21 the -- we didn't do a detailed construction plan but
22 from reconnaissance and map studies, we decided that
23 some of that mountainous terrain would probably be best
24 done in the summer. I don't have the specific locations
25 here with me, though, Mr. Goudge.

26 Q Did you make an analysis
27 of the specific locations, that is did you determine
28 which locations might be built in summer on those two
29 routes?

30 A Yes, I'm sure we marked

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Goudge

1 those out on maps.

2 Q Would it be a simple
3 task to provide us with some outline of those areas?

4 A Yes, it would be based
5 on our judgment at that time, of course.

6 Q Certainly, that's your
7 opinion, as to -

8 A Yes sir.

9 Q -- what parts you'd
10 do in the summer on either route. No doubt summer
11 construction in Canada, as in Alaska, presents many
12 greater or different problems than winter construction.

13 A Different problems,
14 certainly.

15 Q Yes. As to environmental
16 matters, your evidence, Mr. Hemstock, indicated a
17 preference for the Canning River option rather than the
18 Marsh Fork option. While both those are in Alaska,
19 is there a simple explanation as to why one is enviro-
20 nmentally preferable?

21 WITNESS HEMSTOCK: I think
22 Dr. Banfield can best comment on that. As I recall,
23 there was a good deal of difficulty in really assess-
24 ing which of the two were the better, and as I recall,
25 there was not a great deal of difference. At least
26 part of it has to do with the amount of space which
27 is available for the construction.

28 WITNESS BANFIELD: The con-
29 sultants are not unanimous in their choice, however
the importance of the Marsh Fork as a major migration

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Goudge

1 route for grizzly bears and caribou, as well as the
2 close proximity to lambing areas for Dall sheep, as
3 well as the sighting of more raptor sites along the
4 Marsh Fork suggested that it was a less favorable
5 routing environmentally than the other.
6

7 WITNESS HEMSTOCK: On the
8 other hand, Dr. McCart was concerned, as I recall,
9 with the Canning because of the small space which was
10 available, and the proximity to the river of the pipe-
11 line right-of-way, and the fact that some of the over-
12 wintering areas there would be very close to the right-
13 of-way.

14 WITNESS BANFIELD:
15 Yes, there was a very
16 important spring on the Canning that he considered more
17 important from the fisheries point of view.

18 Q I take it you lost that
19 round. Dr. Banfield, in connection with mammals and
20 birds and fish, has the applicant or have you identified
21 for areas in Canada north of 60 particularly critical
22 areas on each of the routes we've been speaking about?

23 A Yes sir.

24 Q Is that documented?
25 That is, is that recorded in a way that would be
26 readily available?

27 A Yes sir, in a general
28 way -- and my hesitancy was that we have conducted,
29 as you know, a general overview of the total corridors
30 from the delivery point, and biologically speaking
the line of the 141st degree of west longitude has

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Goudge

1 no biological implications, and that being the inter-
2 national boundary, sir, and when you have compelling
3 factors such as the international nature of, the inter-
4 national nature of the Porcupine caribou herd, one
5 tends to group one's considerations of the various
6 alternative corridors in total, but we have identified
7 the concerns in a linear way so that at the 141st line
8 they -- those on continuing southward are obviously
9 in Canada.

10 Q Yes, so that when you
11 say "in a linear way" you mean following the route of
12 the pipeline.

13 A Yes, considering the
14 corridors, say the Prudhoe Bay lateral starting at
15 Prudhoe Bay and the Mackenzie Delta lateral, of
16 course, remains entirely in Canada. I would also
17 like to indicate, I hope it is not new evidence, but
18 these aren't the only -- these are general corridors.

19 As a matter of fact, as indi-
20 cated I believe in documents already tabled, the
21 number of permutations and combinations of river
22 valleys in a great complex web of possible
23 corridors were considered originally, and much of the
24 biological material is related to specific mountain
25 ranges and river valleys traversed by a very complex
26 system of interconnecting routes and after that the
27 major corridors that we have been discussing have been
28 identified.

THE COMMISSIONER: Well, thank
you, Dr. Banfield. I think we will adjourn until 2:15.

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Hemstock, Banfield, Trusty
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(PROCEEDINGS ADJOURNED AT 1:05 P.M.)

(PROCEEDINGS RESUMED AT 2:20 P.M.)

THE COMMISSIONER: All right,
we'll come to order now, ladies and gentlemen.

MR. GOUDGE: I wonder if I
might address a few questions to you, Mr. O'Rourke,
particularly as they may affect the Yukon Territory.
I understood you to say both yesterday and in Yellow-
knife that the basic plan for the prime route is
rail to Hay River, barging down the river and around
the coast. Am I correct so far?

WITNESS O'ROURKE: Yes sir.

Q The interior route is
now being addressed in two ways, one plan is the C.N.-
C.P. plan, and the other plan is the plan in the appli-
cation which involves Skagway, Whitehorse, and the
Dempster Highway.

A Yes sir.

Q Is that so? And I took
it that you said to Mr. Veale yesterday, no decision
has been made as between those two alternatives for the
interior route.

A That's right.

Q Yes. Dealing with one
of those two alternatives, the one through Whitehorse,
have you any estimate of what it would mean for the
Skagway Harbour? Would it mean any alteration in the
Skagway Harbour if pipe were to be unloaded there and
transported through the Yukon into the interior route?

A To the harbour itself

Dau, O'Rourke, Williams, Clark,
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1 in terms of -- there would not be required any dredging,
2 say, but to the wharf or the dock. The last conver-
3 sation I had with a representative of the Whitehorse
4 -- White Pass & Yukon Railway, it came out a little
5 indefinite. If the pipe were to arrive there in
6 Skagway during the summer when shipping is rather heavy
7 anyway, there could be some conflict in making use of
8 the existing wharf, and it could be necessary to have
9 to expand, to extend it, and I think really this amounts
10 to rebuilding a portion of the wharf in order to get an
11 extra berth. In the fall and winter months, this may
12 not be necessary.

13 Q So the most that you
14 would contemplate is the addition of one berth to the
15 Skagway Harbour, is that it?

16 A I think that's probably
17 the worst thing that could happen, yes.

18 Q Now, in terms of the,
19 White Pass & Yukon Railway, would you see any addition
20 necessary to the rolling stock if that logistic
21 scheme were used?

22 A In any of the work that
23 we've done, which involved making use of the White Pass
24 & Yukon Railway, we made the assumption that there
25 would be no additional rolling stock available. In
26 other words, we haven't planned on say, having to
27 add additional cars or motive power to their existing
28 plant. We would use whatever capacity they could
29 generate with the existing plant.

30 Q Yes. Do you know if there

Dau, O'Rourke, Williams, Clark,
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1 exists an excess in their usage now that would permit
2 you to use that logistic route without preempting other
3 freight?

4 A The indication I have is
5 that yes, this workload could be handled by them, pro-
6 viding it wasn't compressed too much, "If we can accept
7 your shipments over a reasonable period of time," this
8 is the tone of the discussion we've had with White Pass
9 & Yukon, then they could handle that freight.

10 Q I see. Now as to White-
11 horse itself, there would be trans-shipment point.

12 A Yes sir.

13 Q Do you have any idea what
14 employment would be available in that trans-shipment
15 point?

16 A I think we gave that
17 figure, at Whitehorse we estimated that in the order of
18 25 persons would be required to operate the transfer
19 site. Truck drivers and a few sub-contracting personnel
20 would be additional to that.

21 Q And you have no estimate
22 for the latter?

23 A I'm just trying -- we did
24 give that figure, I'm just trying to figure it out
25 again. The last estimate we did, that could require
26 in the order of 75 people. The trucking operation,
27 that is, from Whitehorse to the next stockpile at
28 Mile 258 on the Dempster Highway.

29 Q In terms of the facilities
30 along the Dempster Highway, does that plan call for

Dau, O'Rourke, Williams, Clark,
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any change in the existing facilities such as the
adding of supports to bridges and so on?

A There is one situation on
the Dempster, I believe there are about three Bailey
bridges in that highway. Now I'm not current whether
they've been replaced in the last couple of years or
not, but prior to that these bridges began to have
restricted capacities applied when the temperature got
colder than 30, minus 30 degrees Fahrenheit. But in
all of our work we tried to work with legal load limits
in estimating truckloads moving from Whitehorse up the
Dempster, and I can't recall that those Bailey bridges
would be a significant problem area. In any event,
if it did look as if they could be a bit of a problem,
I believe it's not too difficult to run little detours
around the bridges.

Q What about widening the
Dempster, do you see any necessity for that?

A We didn't recommend during
visits that this would be required.

Q Dealing with the prime
route, you've given us your best logistic scheme, so
to speak. Is there any set of circumstances under which
you would use the Skagway, Whitehorse Dempster supply
route to supply pipe and other materials to the prime
route along the North Slope?

A I think it could happen,
yes, and we talked about this in a general way before,
that the route we chose was based on a set of assump-
tions containing, say rail rates, barge rates, handling

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1 charges at different transfer points, and a few truck-
2 ing rates, and if when it comes down to more competitive
3 type of bidding, I guess it is conceivable that the
4 carriers involved in that route you've just mentioned
5 could put the other package that would put the materials
6 up into say the Arctic Red River area at a price
7 competitive with the other route.

8 Q I take it your explorations
9 and discussions with the carriers to date don't indicate
10 that as a likely prospect.

11 A Not yet. It wouldn't
12 surprise me if it happened, but you know, when we put
13 our work together we put the same request to all of
14 the carriers, "Give us a number or a rate that we can
15 use," and this is not a negotiating process we're
16 getting into, this was what we were saying to them.
17 So when Arctic Gas or their representatives go into
18 these areas and say, "We're now beginning to negotiate,
19 give us your best rates, and your tonnages that we
20 can commit to a movement," then the numbers may come
21 out a little different.

22 Q Dealing with the other
23 two corridors, the Fort Yukon and Fairbanks corridors,
24 would you envisage the need for the Skagway, White-
25 horse route to be used with either of those? The
26 Skagway-Whitehorse logistic route?

27 A I'm quite sure that could
28 happen, yes.

29 Q In fact it probably would
30 happen, wouldn't that be your first logistics choice?

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1
2 A This becomes more favor-
3 able. It benefits, if that's the word, if the pipeline
4 were to follow the Yukon -- Fort Yukon or Fairbanks
5 corridor.

6 Q In terms of supplying
7 pipe at least for the Yukon part of either of those
8 corridors, there is no other feasible logistics, is
9 that so?

10 A Well, I guess we should
11 back up a little bit and just decide what we're assum-
12 ing as to the pipe origin that we've always said is
13 possible for Canadian pipe to come into Skagway. If it
14 was offshore pipe it would almost certainly come to
15 Skagway and come up into the Yukon via that route.
16 If it was domestic pipe, it could come by that route;
17 if it didn't come that way it could also come via the
18 Fort Nelson-Alaska Highway routing.

19 Q I see.

20 A As another one.

21 Q I see. Are those
22 equal probabilities, in your view at the moment?

23 A We're back to your scale
24 of 10 again?

25 Q Yes, one to one.

26 A I think both routes could
27 be used.

28 Q Dealing with, as the
29 matter of secondary traffic that may be produced as a
30 result of this development, it's true to say, I take it

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
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1 that whatever route is chosen, the only public access
2 to the North Slope will be the Dempster Highway, assuming
3 that to be completed. Would you agree with me there?
4

5 A When you say "whatever
6 route is chosen", are you --

7 Q The prime route, the
8 interior route, the
9 Fort Yukon, or the Fairbanks route.

10 A You've got all four of
11 them in there now?

12 Q Whichever of those
13 is chosen, the only way the public can get to the North
14 Slope is along the Dempster Highway.

15 A To the Canadian North
16 Slope?

17 Q Yes.

18 A Eventually you'll be
19 able to get to the Alaskan North Slope via the
20 other highway.

21 Q Now, do you foresee an
22 inevitable increase in traffic along the Dempster High-
23 way from sources involved in the general development
24 the pipeline will bring, regardless of the route the
25 pipeline takes? Is the traffic going to increase on
26 the Dempster Highway, no matter which route the pipe-
27 line takes?

28 A This would be non-pipeline
29 traffic?

30 Q Yes.

31 A I would say the probability
is certainly somebody is going to make use of that

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
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1 highway.

2
3 Q Have you done any studies
4 of the kind of secondary increase that might arise?

5 A No sir.

6 Q Could you give me any
7 opinion as to the order of magnitude that the increase
8 might have? Is the traffic going to double as a
9 result of the pipeline and its concurrent development,
10 or triple, or would you care to venture an opinion?

11 A Sorry, let's try it again,
12 please.

13 Q When the pipeline goes
14 in, you'll go with me this far , when the pipeline
15 and its concurrent development goes in, there will be
16 some increase in traffic along the Dempster Highway.

17 A Yes sir.

18 Q Yes. Will that increase
19 constitute a doubling of existing traffic?

20 A Well, you're talking
21 of traffic to what destination? If you're talking
22 of Arctic Red, there is no traffic moving over that
23 highway now because it's not open.

24 Q On the parts that are
25 now used.

26 A I guess I can't give
27 you an answer on that because I don't know how much the
28 Dempster is being used north of Dawson City, say.

29 Q What about the traffic
30 between here and Dawson?

Dau, O'Rourke, Williams, Clark,
Hemstock, Banfield, Trusty
Cross-Exam by Goudge

1
2 A As I understand it, that's
3 a well-used piece of highway.

4 Q It will be better used
5 when the pipeline goes in.

6 A Yes sir.

7 Q How much better used?

8 A I haven't done any studies
9 on that.

10 Q Would you venture any
11 kind of opinion? Is it as much as doubling?

12 A I don't think I'd want to
13 guess that.

14 MR. GOUDGE: Mr. Commissioner,
15 subject to one exception, and that is that I anticipate
16 seeing these faces again, I hope, in subsequent phases,
17 and we may well then have questions which at least
18 relate in part to the issues we've been dealing with
19 this week, those are all the questions I have, sir.

20 THE COMMISSIONER: Thank you,
21 Mr. Goudge.

22 MR. MARSHALL: Mr. Commissioner,
23 if Mr. Goudge could finish up questions
24 I would appreciate it 'pertaining to this subject
25 area, if he has others in mind, the reason being
26 that with the phases and with panels and specific
27 subjects, witnesses try to prepare for a particular
28 area, and it makes it kind of difficult if they have
29 to keep jumping back and forth.

30 THE COMMISSIONER: Well, if --
we'll do it this way -- if he expects these witnesses
on any other occasion, when they turn up on a panel,

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1 to deal with alternate routes, then he should advise
2 a week in advance.

3
4 MR. MARSHALL: I'd certainly
5 appreciate that, sir.

6 MR. GOUDGE: There's no diffi-
7 culty with that, Mr. Commissioner.

8 THE COMMISSIONER: Then we can
9 rest assured it will be done. Well, can this panel
10 be excused then?

11 MR. MARSHALL: Sir, I have no
12 re-examination. I think some of the members of the
13 panel will be here for part, if not all of the rest
14 of the week, but others have kind of pressing engage-
15 ments in their offices and would like to get on with
16 it. Might they be excused, sir?

17 THE COMMISSIONER: Yes,
18 certainly. Thank you, gentlemen, very much. You're
19 excused until we meet again.

20 (WITNESSES ASIDE)

21 MR. GOUDGE: Mr. Commissioner,
22 the next panel is to be presented by Mr. Veale, and
23 if they could come forward perhaps they could begin.

24 THE COMMISSIONER: All right,
25 Mr. Veale.

26 MR. GOUDGE: Mr. Commissioner,
27 Mr. Anthony indicated to me this morning that he
28 wanted to put on the record a request or a question.

29 MR. ANTHONY: Mr. Commissioner,
30 it's more than a question, and that is obviously Foot-
hills Pipe Line are not planning to lead any evidence

1 at this hearing, that has been set up to consider the
2 question of alternate routes and corridors, and I was
3 just would like to ask the representative of Foothills
4 whether it was just the timing, and whether in fact
5 he will be leading evidence on alternate routes and
6 whether we are hoping to accommodate that evidence at
7 a later stage?

8 MR. HOLLINGWORTH: Mr. Commis-
9 sioner, as you know, Foothills has been put under
10 considerable pressure after being named an applicant
11 before you to appear with a great deal of evidence
12 and a great number of panels, in a very short period
13 of time. Really we're at the point of just thinking
14 one panel ahead at this time; I will say that because
15 of the way the Foothills --

16 THE COMMISSIONER: Excuse me
17 a minute.

18 MR. HOLLINGWORTH: Yes.

19 THE COMMISSIONER: Do you
20 gentlemen want to take the seats closest to that end,
21 if you don't mind? The microphones will be moved down
22 for your convenience.

23 Carry on, Mr. Hollingworth.

24 MR. HOLLINGWORTH: Yes, Mr.
25 Commissioner. Because of the way the Foothills' scheme
26 is proposed to run down the Mackenzie Valley, we don't
27 anticipate calling panels to consider the possibility
28 of going via the Fairbanks corridor. This doesn't seem
29 to make much sense, given the purpose of the Foothills
30 scheme, that is to say the area of supply it contemplates

1 and the area of deliverability , or delivery that it
2 contemplates. All I can say at this time is that I
3 do not anticipate calling any evidence on alternate
4 corridors other than possible small variations within
5 the Mackenzie Valley. But I think that that's a dif-
6 ferent aspect than what Mr. Anthony is considering at
7 the moment. I'm not sure if that answer satisfies him
8 or not.

9 MR. ANTHONY: Well, perhaps
10 I could be more specific. I would assume that under
11 the pipeline guidelines, the same requirements apply
12 to a pipeline that's solely along the Mackenzie, and
13 while I don't anticipate they will be leading any
14 evidence of alternate routes down the Fairbanks
15 corridor, I would think they would be under some
16 obligation to lead evidence on alternate routes down
17 the Mackenzie; and if my friend is saying that they
18 in fact expect to lead evidence on alternate routes
19 down the Mackenzie, I think that answers the question.
20 If he's saying he won't be leading evidence on alter-
21 nate routes to the Yukon, I don't think that helps me
22 very much.

23 THE COMMISSIONER: Well, I
24 tell you what I'm going to do. Obviously Foothills
25 isn't ready now or later this week to lead evidence
26 regarding alternate routes. I'm glad you raised the
27 matter, Mr. Anthony. I don't intend to deal with it now.
28 We have heard what Mr. Hollingworth has had to say,
29 and I'm going to ask Commission counsel to review the
30 matter and to raise the matter at the Inquiry in

1 Yellowknife if it appears that under the pipeline
2 guidelines and my rulings we should require more than
3 that of Foothills.

4 MR. HOLLINGWORTH: Well, sir,
5 I make the answer I do fully cognizant of both your
6 rulings and the pipeline guidelines, but I did want
7 to point out that it's hardly feasible for Foothills
8 to suggest an alternate going around via the Fairbanks
9 corridor, and that's why I excluded that topic.
10 It looks to me as if the only feasible alternatives to
11 Foothills would be within the Mackenzie corridor, but
12 I can't give you a concrete answer. Sorry, I attempted
13 to find out but I simply couldn't.

14 THE COMMISSIONER: No, I'm not
15 criticizing you, Mr. Hollingworth. I quite understand.
16 I'm simply putting the matter to rest until we've all
17 had a chance to examine it, and I don't want to do
18 that this afternoon.

19 MR. HOLLINGWORTH: Thank you,
20 sir, and I'll try and establish a more concrete answer
21 for you in Yellowknife on Monday.

22 THE COMMISSIONER: Thank you.
23 Well, Mr. Veale? Have these witnesses been sworn:

24 MR. VEALE: Mr. Commissioner,
25 while the witnesses are being sworn, I would indicate
26 that the counsel for Yukon Indians is presenting part
27 of its evidence at this time and will be presenting
28 further evidence presumably on Friday, and the evidence
29 is being split in this fashion simply to accommodate
30 other parties for timing purposes.

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JOE JACQUOT,
DAVID JOE,
ALAN LUECK,
SHELDON SPRECKER, sworn:

DIRECT EXAMINATION BY MR. VEALE: Mr. Commissioner,
the first witness of this panel on your left-hand side
is Mr. Joe Jacquot, the co-chairman for the Council of
Yukon Indians. Seated beside him is David Joe, a
consultant for the Council for Yukon Indians and beside
Mr. Joe is Alan Lueck, the legal advisor for the
Council of Yukon Indians. The next gentleman is
Magistrate Sheldon Sprecker, who is from Glennallen
in Alaska. Glennallen, I believe, is north of Valdez.
Magistrate Sprecker is the magistrate of the Third
Judicial District in the State of Alaska, and I believe
that Mr. Joe will lead off with the evidence, followed
by Magistrate Sprecker.

Perhaps before beginning, in
reference to the brief we also have an accompanying
map, but seeing as how Arctic Gas has already taken
the prime pipeline route, they have also taken the
prime area for map-pinning.

So perhaps instead of maybe
perhaps pinning the map at this point, we can -- if
there is any difficulty by yourself or any of the
other counsel present, we can pin the map during the
process.

THE COMMISSIONER: Well, if
this is the map why don't we have Miss Hutchinson pin
it up over that map?

MR. VEALE: It should be added,

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1 though, that I believe there is one mistake on the map
2 in respect to the alternate route on the Fairbanks
3 corridor -- or the Fort Yukon corridor.

4 WITNESS JOE: Judge Berger,
5 on behalf of the Yukon Indian people I want to thank
6 you for encouraging my people to tell you their feelings
7 about the pipeline. You are the first person represent-
8 ing the Government of Canada to listen to our people,
9 in Old Crow as well as in the Southern Yukon. I
10 hope you listen^{ed}/well when you were in Old Crow. I hope
11 you will listen well to what we will be saying to you
12 while we are in Whitehorse. The time and money you
13 made available has allowed us to put a lot of thought
14 and work into this position paper.

15 Judge Berger, you have built
16 up hopes among my people that you will tell the
17 government how we feel. We expect you to make sure
18 that these feelings will be taken into consideration
19 when decisions are made regarding this pipeline.
20 This is a big responsibility for you. We have a similar
21 responsibility. After many years having the Department
22 of Indian Affairs to protect their interests, the
23 Yukon Indian people now expect the Council for Yukon
24 Indians to protect their interests from outside forces
25 like the pipeline.

26 In your ruling of May 21, 1975,
27 you said:

28 "Now it appears that a gas pipeline will likely
29 come first, and that if it is built it will be
30 followed by an oil pipeline. The route that is

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1 chosen for the gas pipeline would be chosen for
2 the oil pipeline, too. The transportation corri-
3 dor that in the short run will likely include
4 a gas pipeline and an oil pipeline, and that might
5 in the long run include a highway, a railroad,
6 and electric power transmission lines."

7 We have always felt that a pipeline would be only the
8 beginning of major development. Once this right-of-way
9 is granted, other developments will follow. We know
10 this because we have watched the white development in
11 the Yukon many times. We were here before, during and
12 after the Alaska Highway was built. We realize, Judge
13 Berger, that you are here in Whitehorse to hear the
14 people of the Yukon speak about their feelings on alter-
15 nate pipeline routes. We have tried to address
16 ourselves to this topic, but as you can appreciate
17 by now, it is difficult to isolate discussion on
18 the pipeline from such things as land claims and future
19 northern development projects.

20 We ask you to bear with us
21 in our presentation, as we know that the entire presen-
22 tation, once completed, will become totally relevant
23 to not only alternate routes but also to proposed --
24 to the proposed pipeline in general. Our presentation
25 to you, Judge Berger, is divided into three parts.
26 The first is a brief overview of the history of the
27 Indian land use and how each area may relate to alter-
28 nate routes. We are doing this to give you a clear
29 picture of how we used the land for our village
30 economy before the white man arrived. We will try to

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1 show you on the map what land was used to support this
2 type of economic system.

3 The second part will be a
4 short summary of the position taken by the people of
5 Old Crow, and the reasons why the Council for Yukon
6 Indians supports their stand.

7 In the third part we will try
8 to describe to you the history of white development
9 as we have seen it. This is the basis for the Council
10 for Yukon Indians' position of no pipeline until
11 land claims. We will be calling witnesses who will
12 describe in detail some of the things we are talking
13 about.

14 Part I, overview of tradi-
15 tional Indian land use. Thousands of years ago the
16 Yukon Territory was part of a corridor through which
17 earliest man migrated from Asia to North and South
18 America. In the Yukon we have never lived in large
19 tribes such as those in the south or along the coast.
20 We lived in an area which had one of the harshest
21 climates in the world, where winter temperatures are
22 regularly below 40 below zero. We had almost no readily
23 available abundant sources of food, so we travelled
24 in small family groups of 10 to 15 persons. We came
25 together in larger groups, 60 to 100 only for trading,
26 .pot-latches, or at established summer fish camps.
27 We required lots of land to move around in if we were
28 to survive. If we had tried to live too long in any one
29 area we would have starved. Before 1840 the Central
30 Yukon was used only by Indians, Tlingit Indians from the

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1 coast supplied Russians with furs by crossing the
2 mountains separating us from the Pacific. White traders
3 came in later, and after this change our land use
4 patterns began to shift. Periodic famines and movement
5 of caribou out of the Southern Yukon in the late 1800's,
6 their replacement by moose and the arrival of resident
7 traders all led to changes in our patterns of land use;
8 but although our headquarters might shift, all the land
9 was used and had to be used. We will divide what is
10 now the Yukon into four general areas, as shown on
11 Map 1, and that's Map 1 up there.

12 The north, the south-western,
13 the central western, and the eastern; the black lines
14 separate the four regions. Green marks the traditional
15 village sites, blue marks the present-day villages,
16 brown represents proposed pipeline routes, green with
17 red circle represents traditional village sites which
18 are temporarily used. The northern area was used by
19 the Old Crow and Fort McPherson people. You have
20 heard from these people what areas they used and how
21 they used them. The south-western area now contains
22 the Villages of Burwash, Haines Junction, Whitehorse,
23 Carcross, and Teslin. The ancestors of these people
24 used all of the land in this general area, with the
25 exception of the St. Elias Ice Field. In order to
26 stay alive, our ancestors carefully harvested the
27 land from the river basin to the upper ranges of
28 the mountains. Well-worn trails link rivers, lakes
29 and trading centres. As in all parts of the Yukon,
30 a detailed knowledge of the land was essential for

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1 their survival, and in the 19th century our use of the
2 land in the south-western area was greatly influenced
3 by trade with the coastal Tlingits.

4 Early villages like Witcheye,
5 Aishihik, Wesketahin, and Dalton post are mostly abandoned.
6 They were at one time major trade centres and summer
7 headquarters for our people. There were a number of
8 villages on the Lower Alsek prior to an epidemic in
9 the mid-19th century. In the Kluane region people
10 lived on the Nisling, White and Kluane Rivers moving
11 as far east as the Yukon River. The year^{ly} pattern for
12 many of these people was to live at fish camps during
13 the summer, move to hunting grounds in the fall, trap-
14 ping through the winter, and coming together at trading
15 camps in the spring. Archaeologists working in this
16 region estimate that families living in the White River
17 area used approximately 10 to 12,000 square miles
18 following century-old trails.

19 The Lake Arkell-Kusawa
20 and Takhini River areas were also extensively used.
21 No settlements remained at either. Laberge Village
22 at the head of Lake Laberge was a major camp for many
23 families in this area of the Yukon. It is now aban-
24 doned. Upper Laberge is sacred, near Mile 11 on
25 the Mayo road due to cremation. Because of their
26 position as middlemen in Indian trade, the people
27 whose descendants now live at Teslin and Carcross
28 had amore regular seasonal pattern of life than people
29 living further east. The lands used by them extended
30 into what is now British Columbia.

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1 The central western area con-
2 tains most of the Yukon River drainage north of
3 Lake Laberge to the Alaska border. This waterway was
4 used by the ancestors of the people living today in
5 Villages of Dawson, Pelly, and Carmacks.

6 Prior to the gold rush there
7 were major concentrations of people at the mouth of
8 the Klondike, the mouth of the Pelly, and the numerous
9 fish camps along the river system. However, the
10 use of land went inland from the river and trade routes
11 often ran at right angles to the river. For example,
12 people on the Klondike traded west to the Tatonduk
13 and White Rivers, and north to the Peel. At Fort
14 Selkirk they traded south to Aishihik and from
15 Tachin Creek south-west to Aishihik.

16 Like their neighbors to the
17 south and west, they came together ^{in the summer} at fish camps and
18 then spread out to hunt caribou and moose in the fall.
19 During the winter they moved as little as possible and
20 relied on fish dried in the summer, along with the
21 occasional moose. Living further inland their land
22 use patterns were less governed by Tlingit trade than
23 their neighbors. Hunting territories overlapped and
24 were not rigidly defined.

25 The eastern area includes the
26 eastern drainage of the Yukon River and the upper
27 Mackenzie, drainage, including the Liard. Descendants
28 of the people living in this area now live in the
29 Villages of Upper Liard, Ross River, and Mayo. Their
30 annual hunting and fishing patterns were similar to other

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1 Yukon Indians, except they had less opportunity to
2 catch salmon. Because they lived further inland,
3 they were less influenced by trade with the coastal
4 Indians to the east, and south, as well as to the west
5 of the Mackenzie. We have tried to tell you, Judge
6 Berger, that before the white man came to the Yukon
7 our ancestors needed all of the land to stay alive.
8 They harvested the resources in such a way that the
9 resources of supply never dried up. They worked with
10 nature and not against it. Many of our people today
11 do not want to go back to the old ways. They were very
12 hard, but we believe we can plan a future that will
13 not depend upon destroying the basis of our way of
14 life.

15 Part II, Old Crow. Judge
16 Berger, the people of Old Crow told you many times
17 when you were there last month, they told you of their
18 history, their love for their land, their dependence
19 on Crow Flats, their need to use the Porcupine
20 drainage, their pride in their past, their frustrations
21 with government and other white man's projects, and
22 most of all they expressed to you their fear for the
23 future. Just as a big hydro dam seems to be the
24 end of the road for a salmon going upstream to spawn,
25 the Old Crow people feel that this pipeline can be
26 the end of the road for them.

27 From our experience in
28 other parts of the Yukon, we feel that there is nothing
29 the Old Crow people can gain from the pipeline, while
30 there is much they can lose. The people of Old Crow

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1 spoke to you with one voice, the old and the young,
2 the Indian and the non-Indian. The Council for Yukon
3 Indians fully supports the people of Old Crow and their
4 opposition to any pipeline through the Porcupine
5 drainage. Before the Council for Yukon Indians was
6 formed in 1973, the Yukon Native Brotherhood supported
7 the people of Old Crow in their efforts to stop oil
8 exploration activity in Crow Flats. The Government
9 of Canada listened to us at that time. We have attached
10 copies of letters from Mr. Chretien and Mr. Buchanan,
11 the former Minister of Indian Affairs & Northern
12 Development, and the present Minister. The Council
13 for Yukon Indians will continue to support the people
14 of Old Crow and their fight against the pipeline,
15 using all of the resources we have.

16 Part III, C.Y.I. The
17 pipeline represents development to the white man, but
18 it represents destruction to the Indian. We are told
19 the pipeline is needed for development. We are not
20 convinced. We are not sure we can survive much
21 more development by outsiders. We want development but
22 only if we have a real say about what that development
23 will be, and how that development will take place.
24 Development is what we mean when we say "land claims".
25 Much of the misunderstanding about our land claims
26 is due to the fact that we are looking for ways to
27 develop ourselves without spoiling the land. We have
28 no plans to move south when we make our bundle. We
29 are going to stay in the Yukon for many, many years.
30 We need to be sure that our land will not only be

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1 there, but that our grandchildren will be able to use
2 it. We know many non-Indians share this concern for
3 our land, and we hope they will support us at this time
4 and in the future.

5 Mr. Berger, the reason we are
6 concerned about the pipeline being built before we
7 settle our land claims is that we are afraid of the
8 destruction both physical and social that will come.
9 If we can obtain a just and fair land claim settlement
10 we will be better able to protect ourselves from the
11 bad effects of the pipeline. At the same time we
12 will be better prepared to take advantage of any possible
13 benefits of such a project. Without a settlement the
14 pipeline will be just one more example of white economic
15 development that will further destroy our way of life.
16 We have seen many such examples over the last 150
17 years.

18 The coastal Indians introduced
19 trapping for trade to our ancestors. They brought
20 metal knives and pots which helped to make their
21 lives easier; but they took some of our women back
22 with them, along with the furs they had received.
23 The white fur trader came next. We welcomed many of
24 the goods he brought, but we had to change our way of
25 life. We moved our headquarters to the trading posts.
26 We ended up in debt to the trader, we were working
27 for him more than we were for our families.

28 Commercial trapping, once
29 secondary to hunting, began to control our way of life.
30 the Indians became bound to a European fur trade over

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1 which they had no control. The fur prices were set in
2 Europe and went up and down unpredictably. It seems
3 to us that the government spends a lot of money to
4 protect the price of grain, metal, beef, butter, etc.
5 The trapper could contribute more towards the economy
6 if he knew he was going to get a certain price for
7 his fur. Russia has been doing this for several years.
8 Three of our present 12 villages began as trading posts:
9 Ross River in 1903, Burwash in 1904, and Teslin in 1904.
10 The white man missionaries came next to save our souls
11 and develop our spiritual life. Although some may have
12 meant well, they succeeded in helping destroy our
13 language and our families. You were told in Old Crow
14 of one person who was separated from his family for
15 eight years; when he returned he was a stranger in his
16 own land and was unable to make his living.

17 Next came the infamous Klondike
18 Gold Rush. The impact of the gold rush was significant.
19 Before 1898 most Yukon Indians had not even seen
20 whites except for the occasional prospector, trader,
21 or missionary. Within two years more than 40,000
22 invaded the Yukon with their picks and shovels and
23 their ignorance about survival in the Yukon. The
24 gold rush had a devastating impact on people living
25 near the Klondike and all along the entire route. Many
26 died from diseases brought by the white man. Many left
27 the bush to work at what turned out to be temporary
28 jobs. Many of the white men relied almost completely
29 on Indian packers and guides, without whom they would
30 never have reached the Klondike. But like future

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1 white developments, the gold rush was soon over. By
2 1910 most had left, and the Indians were left with a
3 mess. Today the Dawson Indians have to travel 60 miles
4 to cut their firewood because of the destruction caused
5 by the gold rush.

6 By 1902 the damage to the
7 Indian people had become so bad that Chief Jim Boss of
8 Laberge wrote to Ottawa for a treaty so the survivors
9 of his people could be protected. He asked for a land
10 settlement in 1902 from the effects of the gold rush.
11 This is why the Council for Yukon Indians is saying,
12 "Land claims first, and then we'll talk about
13 the pipeline."

14 Attached is a copy of Jim
15 Boss' letter and the answer to his letter.

16 The gold rush set out what
17 was to become the pattern for white development.

18 (1) look for what you want

19 (2) come and get it

20 (3) get out and let the Indians live with the mess and
21 try to rebuild.

22 The present Indian Village of
23 Dawson began with the gold rush, as did Carcross and
24 Whitehorse-- Carcross, to service the railway, and
25 Whitehorse to service the river boats. New trans-
26 portation systems followed the gold rush. Wood-burning
27 steamers operated between Whitehorse and Dawson, as
28 well as on other rivers. Many Indian families changed
29 their way of life to spend part of the year cutting
30 wood for the boats. Indians gave up their trapping and

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1 trading routes and became dependent upon the river boats
2 for both cash income and transportation.

3 Epidemics have always accompan+
4 ied white development in the Yukon. Our ancestors had
5 no immunity to these diseases, and no doctors or
6 facilities for dealing with them. Smallpox, scarlet
7 fever, influenza, T.B., pneumonia, diptheria, measles,
8 chicken pox, whooping cough, dysentery, jaundice, German
9 measles, mumps, and meningitis all helped to lower the
10 Yukon Indian population. Several villages were nearly
11 wiped out, as Jim Boss said in his letter of 1902,

12 "The population had dropped from several thousand
13 to 800 from 1894 to 1902."

14 When the Alaska Highway was built in 1942-43, the
15 effects on these Indian communities through which it
16 passed were destructive. Many people moved to those
17 villages to get work. Epidemics killed many old
18 people and children. In Teslin a doctor reported only
19 the Indian population was affected. Social problems
20 brought with the Alaska Highway construction included
21 liquor, venereal diseases, broken homes, and theft
22 and vandalism of Indian property by American soldiers.
23 If an Army with its control and discipline could be
24 so destructive a force, we shudder to think of the
25 damage a privately built pipeline will do.

26 In the early 1950's the high-
27 ways to Dawson, Mayo, and Haines were built. The
28 river boats disappeared and Indians were forced to
29 leave their villages of Fort Selkirk, Little Salmon
30 and Big Salmon, Minto and their wood camps to move to

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1 their wood camps along the new highways. Most moved to
2 Pelly Crossing and Carmacks.

3 Starting shortly after the war
4 the Department of Indian Affairs decided to build per-
5 manent Indian Villages to make their administration
6 easier. In 1948 Upper Liard was created. In 1951
7 the present Whitehorse Village. In 1958 the present
8 Carmacks Indian Village. No thought was given to
9 providing an economic base for these communities. This
10 we hope to finally try to do when we have our land
11 claims settlement. But the kind of development
12 will be determined by people in the villages, not
13 by Ottawa, Whitehorse, or by the pipeline. The major
14 white development we have in the Yukon today is mining.
15 Although the government insists that Yukon Indians
16 should benefit from this development, things have not
17 changed since 1898. Anvil signed an agreement which
18 committed them to 25% Indian work force by the time
19 they had been in production five years. This time has
20 come and gone, and Anvil and the government have
21 ignored the contract and many suggestions made to
22 help them meet this commitment.

23 Maybe mining is not the type
of development Yukon Indians can relate to. The social
damage to Ross River caused by recent mining activity has
been documented, but the Federal Government refuses to
allow anyone to see the report. I suggest, Judge
Berger, that you ask Mr. Buchannan for a copy of George
Milner's -- George Miller's report. The governments,
both Federal and Territorial, are spending a lot of

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1 time and money trying to talk Yukon Indians into joining
2 their payrolls. They are having no success and they
3 will have no success so long as they remain insensitive
4 white institutions. The whole social service system
5 tends to interpret the problems faced by an Indian from
6 a white middle class value system, which ignores the
7 strengths of our own culture. It is doomed to failure
8 and they know it, and we know it.

9 Another prime objective of
10 our land claims is to gain control over programs which
11 are supposed to meet our needs. You are here primarily
12 to listen to our submissions about the routing of the
13 pipeline. We wish to clearly spell out our position,
14 so that there may be no misunderstanding.

15 We are, as we have already
16 stated, opposed to a pipelining going anywhere near the
17 Old Crow area, whether before or after land claims
18 have been settled, for all of the reasons given.

19 We are opposed to the constru-
20 ction of a pipeline along the North Slope route because
21 of the damage to the land and the wildlife which will
22 affect our people in Old Crow. Also as citizens of the
23 Yukon, we fear for the entire northern area, as we have
24 no confidence that a pipeline can be built in that
25 area without destroying it. The price is too high to
26 pay. We do not want to appear as being opposed to
27 everything. We would like to co-operate with other
28 people who want to develop the Yukon, but we are not
29 convinced that the people who want a pipeline want the
30 kind of development that would be good for the Yukon

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1 and for all Yukoners.

2 The Fort Yukon corridor goes
3 through five of our 12 villages. Dawson, Pelly,
4 Carmacks, Ross River, and Upper Liard.

5 The Fairbanks corridor also
6 goes through five of our 12 villages. Burwash,
7 Haines Junction, Whitehorse, Teslin, and Upper Liard.

8 There will be many economic
9 and social changes along either of these corridors.
10 These changes may provide short-term benefits to a
11 few Yukon people who participate, but will harm most
12 of our people. These people will be forced to pay
13 much higher prices while their income stays the same.
14 We know what is happening in Alaska and how the Alyeska
15 Pipeline has affected prices. We also know that most
16 of the pipeline workers in Alaska come from Texas,
17 Oklahoma, and other southern oil states.

18 Our position on any corridor
19 across the Northern Yukon was made clear earlier in
20 this paper. We will oppose any northern corridor.
21 Our position on either of the two southern routes is
22 as follows: The Yukon Indian land claims must be
23 settled before any permit is given to build a pipeline
24 in the Southern Yukon. Programs under our land claims
25 settlement must be set up and operating before any
26 permit is given to build a pipeline in the Southern
27 Yukon. A program of research, including formal
28 community hearings along the proposed routes must be
29 carried out before any permit is given to build a
30 pipeline in the Southern Yukon. These three conditions

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1 are not being submitted to oppose development, they are
2 submitted so that the Yukon Indian people will share
3 in the development, for the first time in the history
4 of the Yukon since the white man came to this land.

5 In conclusion, Mr. Berger, for
6 the past 80 years we have been told to adapt to the white
7 man's economy. Over and over we have tried to do so.
8 Over and over we have been left with nothing but
9 disappointments, broken homes, and poverty. We have
10 finally learned how the white man thinks about our
11 land and we will no longer help him to destroy it.
12 With our land claim settlement, we will build our own
13 economic base. It will not be a short-term economic
14 development, it will last for generations. It will
15 be based on renewable resources, the resources we
16 know how to manage. Our economic development has to be
17 permanent because we do not plan to go south when we
18 get enough to get out. This is our home and we are
19 going to stay. We want our grandchildren to be able
20 to say we kept their home intact.

21 You have it in your power,
22 Mr. Berger, to recommend to the Government of Canada
23 that our land claims be settled prior to granting of
24 any right-of-way. We are counting on you to do so.

25 That concludes the prepared
26 presentation.

27 THE COMMISSIONER: Thank you,
28 Mr. Joe. Before you go on, Mr. Goudge, I'd like you
29 to find out about George Miller's report on Ross
30 River and see what you can do to get hold of that.

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1 MR. GOUDGE: Yes sir, I'll do
2 that.

3 WITNESS SPRECKER: Before I commence
4 giving the testimony I have prepared on the impact,
5 perhaps I should qualify my remarks somewhat.

6 No. 1, why I am here, coming
7 all the way from Alaska to testify.

8 No. 2, my position as a
9 representative of the State of Alaska, especially the
10 Court system, and perhaps No. 3, my personal position
11 regarding pipelines.

12 I was asked to testify by the
13 COPE Committee due to the fact that Glennallen is
14 the central distribution point for the southern terminus
15 of the Alaska Pipeline, and I am the only judiciary
16 officer for 144 miles along the length of that pipeline.
17 The State of Alaska has come out with a prepared
18 statement that they favor an Alaskan Gas Pipeline.
19 So any remarks that I make should not be concluded in
20 any way to distract from that prepared statement by
21 the State of Alaska.

22 Third, on the personal basis,
23 one pipeline in my lifetime is enough. I don't think
24 I want another one or to be involved in it.

25 THE COMMISSIONER: Magistrate
26 Sprecker, I was in Alaska in June and I visited the
27 Alyeska camp at Glennallen I think it's called
28 Glennallen Camp.

29 WITNESS SPRECKER: Technically,
30 Tazlina Camp, it's on the Tazlina River.

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1 Q And just south of it is the
2 -- that is within the Otna --

3 A Otna Regional Corporation.
4 yes sir, a native corporation.

5 I missed your during your
6 trip there, I was in Court the couple of days that
7 you were there, but the Alaskan Pipeline has had a
8 tremendous impact upon the small communities, the Glenn
9 allen being a community of at this time perhaps 6,000
10 to 8,000 people, due to the pipeline influx. When
11 I moved to Glennallen ten years ago, it was a commun-
12 ity of approximately 400 people. It has been growing
13 steadily in the last ten years.

14 The only statistics that I
15 amprepared to quote are those relating directly to
16 the Court system, and the related impact that they
17 had upon the community and the community area. There
18 are five native villages in the area that I serve
19 as magistrate. The major difference between your
20 proposed pipeline and the Alaska Pipeline is the
21 fact that there is an all-weather road, there is an
22 existing highway system alongthe entire route, where
23 here of course you're dwelling into a different area.

24 The statistics and things
25 that I'm going to use, I have prepared some copies
26 of those; others I have gathered since I talked with
27 Mr. Veale, and would be more than happy to provide
28 these as copies for information, what have you.

29 Q Thank you.

30 A The first one that I have

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1 is a monthly report prepared by Theo Smelser, who you
2 met in Copper Center as the pipeline impact co-ordin-
3 ator for the Copper River Basin, which is the area that
4 I serve. Just one brief quote, a paragraph that I'd
5 like to relate to you is regarding pipeline activity
6 in the way of traffic, and she states as follows:

7 "The pipe-loaded trucks started moving out of
8 Valdez through the Copper Valley about the middle
9 of May. According to Alyeska projections, there
10 are 47 pipeline trucks going through the Copper
11 River Valley each day of that particular month."

12 The survey that she made May 26th through May 29th of
13 the traffic through Copper Centre, which is just 16
14 miles south of Glennallen, revealed that there were
15 20 heavy trucks, 108 cars and pickups per hour. In
16 an 8-hour day that is 160 heavy trucks and 864 cars
17 passing through the Copper River Valley on the
18 Richardson Highway, which is the main flow traffic
19 highway.

20 "The majority of the heavy trucks had Alyeska
21 insignias of some kind, yet it's difficult
22 to determine what percentage were directly pipe-
23 line related. Of the cars and pickups, about
24 25% were pickups bearing Alyeska insignia."

25 This will give you just a brief idea of some of the
26 tremendous physical impact that the pipeline has had
27 upon our particular area.

28 As far as the Court is
29 concerned, I have been in office five years this
30 coming January. I am not an expert on pipelines. I

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1 am not an expert probably even in the judiciary sense,
2 other than the experience that I have had in seeing
3 my case load going from 200 cases a year to where this
4 year I am right at the moment at 1,300 total cases, and
5 anticipate a projected load of about 1,800 to 2,000.

6 80% of those are traffic
7 related cases. The rest would be criminal, either in
8 the vein of misdemeanor, felony, fish and game, juven-
9 ile violations. I do have statistics I would like
10 to quote, statistics are very boring and I'll go over
11 them very quickly. I of course will be open to
12 cross-examination, that scared me a little bit, cross-
13 examination, as five years on the bench I've never
14 been cross-examined by a group of attorneys, believe
15 me. It should be an interesting experience for me.

16 I have seen witnesses tie
17 attorneys into knots, I don't know if that's -- if
18 I can expect any leniency or not.

19 THE COMMISSIONER: They're
20 all pussy cats.

21 (LAUGHTER)

22 A I went back to 1972 in
23 compiling my statistics. As was mentioned earlier
24 today the pipeline project for Alaska came to a
25 screeching halt after there was a big push to get
26 it started, then the Sierra Club stepped in, and the
27 environmental studies had to be made after that time,
28 and nothing really began again until early 1974.

29 The pipeline impact in '72
30 was probably non-existent. I had a total, just of
cases that I handled, of 354 cases.

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1 Mr. Veale, were those
2 statistics handed out to the different attorneys rather
3 than my reading all of them? O.K.

4 The traffic load at that time
5 was 206, compared with 86 misdemeanor cases, 15 felony
6 cases, 4 juvenile cases, and 43 fish and game cases.

7 1973, again still no pipeline
8 impact, and we had only 305 cases for that year.
9 Traffic and misdemeanor were about equal, 151 traffic,
10 120 misdemeanor. Felony cases were beginning to climb
11 for some reason, at 23 compared with 15 in '72. 3
12 juvenile and only 8 fish and game cases, mainly because
13 we lost our fish and game officer.

14 (LAUGHTER)

15 In 1974, the traffic cases
16 and related cases begin to climb. The pipeline impact
17 began perhaps early May or June at the earliest for
18 our particular area. This was people coming in, the
19 camps beginning to be cleared, the areas for them, no
20 access/^{road}work being done, no pipeline haul road work
21 being done, simply preparation, hauling of trailers,
22 from Atco here in Canada came across from Calgary in
23 Alberta, I believe, and they began to stockpile
24 supplies. I had a total case of 640 for 1974.
25 Slightly double what we've seen in '72 and '73. The
26 traffic was 374 cases. Misdemeanors 214, felony jumped
27 to 35, 17 juvenile cases.

28 And then we hit 1975, and I
29 broke these down into two segments. January through
30 March of this year the pipeline activity came to a stop

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1 for the middle two weeks of January due to 63 below
2 weather. The people in Alyeska had neglected to tell
3 the Texans to bring their long underwear, and the Texans
4 refused to work at 63 degrees below zero, and their
5 equipment came to a screeching halt. Their oil was light-
6 weight, they had all kinds of problems. I trust Arctic
7 Gas is prepared to work around those problems. But for
8 two weeks we had 63 below and the pipeline activities
9 stopped, they closed the camp down, sent the people
10 home, and said, "Come back when it warms up," which was
11 about the 8th or 9th of February, when they began
12 working again.

13 Through March 30th-31st we
14 had 194 traffic cases filed, 28 misdemeanors, 1 felony,
15 no juvenile cases, and 3 fish and game cases.

16 From the 1st of April until
17 when I compiled these statistics on July 26th of this
18 year, from 194 traffic cases, we went to 722 more, mak-
19 ing a total of 916 through to the 26th of July. The
20 misdemeanors I filed an extra 110, making a total of
21 138. 20 felonies over that 3-month period, making
22 21 felonies. Still no juvenile cases, which I haven't
23 deciphered yet, I don't know why; and 14 fish and
24 game, or 11 new ones making a total of 14 fish and game
25 cases filed. All 14 fish and game cases were directly
26 related to pipeline individuals, out-of-state residents
27 without licences, taking animals out of season, this
28 type of violation. Those statistics are simply based
29 on my Court case load that I have broken down, not
30 primarily for this particular hearing because I use

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1 these figures in my budgetary work preparing for each
2 fiscal year, and we are building a new Court House,
3 trying to absorb some of the impact, so therefore I
4 had to have these figures, so I did not prepare them
5 primarily for this Inquiry.

6 The other major area of impact
7 that was felt by the pipeline or from the pipeline was
8 in the alcohol-related offences. Now I am not as familiar
9 with the native problems here. I have met a few of
10 the individuals through this Inquiry, but alcohol has
11 been an extreme problem among the native population
12 in Alaska, as it has been with the Indians in the
13 south 48. But that problem perhaps was about 20% of
14 my case load through the first four years. At this
15 juncture, the alcohol-related offences have moved into
16 about a 50% of my case load.

17 I'll take just one figure
18 rather than going into all the other ones, and that
19 is driving while under the influence of alcohol, which
20 is the most serious misdemeanor that the State of
21 Alaska has. The particular figures run through '71
22 through the end of July of this year.

23 In '72 the first year that
24 I kept the statistics, 1972 I filed 20 operating under
25 the influence charges.

26 In 1973 there were 23 filed.

27 In 1974 there were 32 filed.

28 And in 1975 through July 28th
29 of this year there were 73 filed. Of that 73, 80%
30 were pipeline workers, and not native people.

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Property damage to vehicles

Jacquot, Joe, Lueck, Sprecker
In Chief

1 for '74 totalled \$364,900.

2 Thus far through August 1st,
3 1975, \$348,000 has been secured in damages.

4 There were 108 accidents in
5 total for the year of 1974.

6 There have been 130 accidents
to date to August 1, 1975.

7 Now that is only in the Glenn-
8 allen area. I also compiled statistics for the Tok
9 Highway system and the Valdez highway system, which
10 are connecting links through the pipeline. At this
11 time I won't go into those unless it's --
12

13 Q Go ahead.

14 A All right. They are
15 very boring statistics, but I will very briefly.

16 Tok is the border station
17 of the Alcan Highway and all the incoming traffic comes
18 through that particular area.

19 The fatality rate has been
20 zero through 1975, in Tok and there was only one in
21 '74.

22 The injuries were 29 for '74
23 and 13 thus far this year.

24 64 total accidents and 37
25 for 1975. 64 in '74.

26 The property damage in the
27 Tok area was \$203,000, and thus far \$128,000 for 1975.

28 Now these statistics surprised
29 me quite a bit. The City of Valdez is -- was a small
30 town of 1,100-1200 people at the beginning of the

Jacquot, Joe, Lueck, Sprecker
In Chief

1 pipeline construction. It is now close to 10,000 people.
2 Yet the increase in Valdez has been very insignificant
3 thus far in these particular statistics of accident
4 rates and highway mileage. I don't know what to
5 attribute that to other than the fact the camps are
6 providing transportation, and there's not really many
7 places to go in Valdez with private vehicles.

8 No fatalities in '74-'75 in Val-
9 dez. There was one injury accident in 1974. There were
10 17 thus far through August 1, 1975. Total accidents
11 were 17 for the year of '74, and 31 thus far. Total
12 property damage for 1974 was \$19,000, compared to the
13 Glennallen area of over \$360,000. Thus far in '75
14 approximately \$53,000 worth of property damage.

15 Now again statistics are
16 boring and really don't show, you know, how many of
17 these people were tourists, how many were pipeline
18 workers, how many were people that had come in because
19 of the pipeline, and this type of thing. The State
20 Troopers in our particular area are compiling a total
21 statistical report of all pipeline related offences
22 and accidents for the Governor of the State of
23 Alaska for budgetary purposes. That study should be
24 finished sometime this fall, showing how many incidents
25 are pipeline-related, and I would be more than happy
26 to provide the Inquiry with that information when it
27 becomes available.

28 Basically that's all that I
29 have to present at this time on these particular statistics,
30 unless Mr. Veale has something else that I've forgotten,

Jacquot, Joe, Lueck, Sprecker
In Chief

1 but I think that would pretty well cover what I want
2 to mention.

3 MR. VEALE: Magistrate
4 Sprecker, perhaps you could deal with any of the other
5 details of prices and so on.

6 A The pay scales for the
7 particular pipeline camps in Glennallen and perhaps
8 I should relate how many camps there are also. There
9 are three construction camps within the judicial area
10 that I serve -- pipeline camps --and two pump station
11 camps. The total workers for this is to be some-
12 where in the neighborhood of 4,000 to 5,000 men.
13 The pay scales, the information that was provided to
14 me indicate that culinary workers, custodial staff,
15 and bus drivers, people who are the least trained of
16 the pipeline skills, their average salary is \$7.50
17 per hour.

18 They work 7 10s, 7 days a
19 week, 10 hours a day, and anything over 40 hours is
20 time and a half, or if it's Saturday or Sunday it's
21 double time, or if it's a holiday it's double time.
22 The average pay scale for a maid making beds and
23 cleaning rooms, take-home pay is \$2,200 per month.

24 The skilled workers, welders,
25 heavy equipment operators, seismograph engineers,
26 this type of thing, people who make the core samples,
27 were working in the area of \$30 per hour, working
28 7 10s. Their pay ranged anywhere from \$2,800 a month
29 take-home to \$4,500 per month take-home. Some were
30 netting over \$48,000 per year.

Jacquot, Joe, Lueck, Sprecker
In Chief

1 THE COMMISSIONER: Excuse me,
2 just so I understand this, you said a maid would
3 make \$2,200 per month take-home pay.

4 A Approximately \$500 a
5 week, sir.

6 Q Do you mean after
7 deductions of income tax at source?

8 A That's correct.

9 Q And the skilled workers
10 whose range would be from 2,800 to 4,500, a month,
11 that is after deduction of income tax?

12 A That is correct.

13 Q Federal and state income
14 tax?

15 A That is correct. Now
16 they may have a small problem with the state income
17 tax. There has been some fraud detected in some of the
18 workers' applications for state and federal taxes.
19 They are claiming as high as 60 exemptions, large
20 families, southerners, and the Attorney-General
21 for the State of Alaska has a very strong investigation
22 going at this particular time. Evidently all they
23 do is file this when they become employed with the
24 state, and then when they file their federal taxes they
25 of course file the correct amount of exemptions, and
26 the state government never knows the difference.
27 So there has been some problems this way. I would
28 not say the pipeline workers are dishonest. I wouldn't
29 say that.

30 The pay scale, to give you a

Jacquot, Joe, Lueck, Sprecker
In Chief

1 comparison, it's very easy to find out how much money
2 I make, I draw \$19,600 a year as a magistrate in compari-
3 son to a lady or a young man working in the kitchen or
4 making beds for the pipeline, who will be drawing
5 35 or \$40,000 a year. I thought very hard about that.

6 (LAUGHTER)

7 Perhaps I should change
8 positions; but these are just some of the salaries.
9 Those who are in position of supervisors and foremen
10 I could not quote their salaries because they're on a
11 different setup, they're not on hourly wage. There were
12 several of these men who came into Glennallen early
13 in '74 and built houses, as they were going to be
14 there five, six, seven years, maybe even longer. They
15 would be the technical people. Their houses cost in
16 the neighborhood of \$110,000 that they built. So
17 the pay scale is extremely high.

18 I have no idea what the Arctic
19 Gas pay scale would be. I would assume it would be
20 similar to that as it's a similar type of work. That's
21 the run of the pay scales.

22 A few other statistics that
23 I have through May revolve around the hospital
24 facility, we have a small hospital, and they are
25 showing this type of an increase over the pipeline
26 projected period. For the months of February and
27 March, over December of '74, through December of --
28 from that time period they jumped 25%, from December
29 to January, in-patient out-patient work. February
30 was a 22% increase, rather January was 22%; February

Jacquot, Joe, Lueck, Sprecker
In Chief

1 was 30%, and March was 15%, that they had showed just
2 in out-patients coming in, emergency room treatment,
3 this type of thing.

4 The pipeline camps are all
5 well-equipped with emergency care, and they have an
6 eight-bed clinic, in each of the pipeline camps, with
7 paramedics, physician assistants, this type of thing
8 working in the camps. But all of the overflow goes
9 into the local medical facility and the overflow has
10 been substantial.

11 I think that will perhaps be
12 sufficient at this time, Mr. Veale?

13 Q Magistrate Sprecker,
14 could you relate the local housing and how it
15 has been affected by camps and camp size and that
type of thing?

16 A The Glennallen camp has
17 a total of 1,150 workers in residence. It was pro-
18 grammed to be a 600-man camp. Alyeska is now perhaps
19 one year behind schedule. They've been on board
20 less than one year and they project they are a year
21 behind; not a year behind so much in the work that's
22 been accomplished, but where they want to be at this
23 particular point. So they have doubled all the camps
24 in the southern terminus, everything that was 1,000-
25 man camp went to about 1,800 and 600-man camps went
26 to about 1,150-1,200-man camps simply to keep on-
27 schedule. So therefore they are behind in that
28 particular thing.

29 We had the promise, I attended
30

Jacquot, Joe, Lueck, Sprecker
In Chief

1 in 1973 the panel discussion of the Alyeska officials,
2 Charles Elder who is executive vice-president
3 and his staff of experts -- the economists, the biolog-
4 ists, and what have you. At that particular hearing
5 they stated to us that no families would be allowed at
6 camps. There will be no firearms allowed in the camps.
7 There will be no alcohol allowed in the camps. The
8 International Brotherhood of Teamsters took care of
9 that in one fell swoop, and said, "We don't like that
10 at all, you're not running a prison camp, these are
11 workers, these are men who deserve their freedom,
12 deserve recreation and what have you. They will bring
13 their families."

14 As I mentioned earlier, Glenn-
15 allen is a community of about 900 people, and there
16 are four to 6,000 in the area. 1,200 of those are in
17 the camps, the rest are in the Glennallen area. These
18 are families of the workers, wives and children,
19 brothers and sisters, uncles and aunts who have come
20 because the one man is working on the pipeline and
21 the others say, "We can get a job because my brother,
22 Joe, works on the pipeline."

23 These people are living in
24 one-room cabins, campers, trailers, travel-trailers,
25 folded tents, these little Apache folded tent campers,
26 tents, scattered along the 144-mile route of the
27 pipeline through the Glennallen area. I don't know
28 what they're going to do come winter. I trust that
29 they will leave before the first freeze. Some of
30 them will have problems. But there are probably 2,000

Jacquot, Joe, Lueck, Sprecker
In Chief

1 to 2,500 support people who have come in to be with
2 their husbands or what have you, relatives or what
3 have you, living in the Glennallen-Copper Basin area.

4 This holds true for Valdez,
5 it holds true for Delta, which are the three major
6 southern points on the pipeline. Valdez has been in
7 the news, I'm sure you've read some of their tremen-
8 dous problems they've had there -- sewage problems,
9 water problems, fire problems, what have you. The
10 workers do bring their families in the Alaskan Pipeline
experience.

11 The firearm problem has
12 been not really unmanageable so far. The alcohol pro-
13 blem has been, so far as I'm concerned, with the case
14 load that has been increased.

15 Firearms, with people shooting
16 bears out of season, shooting workers out of season,
17 this type of thing, has been minimal thus far. I trust
18 it continues. We've had several stabbings, but so far
19 no shootings amongst the workers.

20 MR. VEALE: I have no further
21 questions, Mr. Commissioner.

22 THE COMMISSIONER: Thank you,
23 Magistrate Sprecker. I wonder if Miss Hutchinson, the
24 secretary of the Inquiry, could collect the material
25 that you read from, and if you could mark it, it will
26 be marked as exhibits.

27 A These are the ones that
28 I quoted, this front paragraph and all of these.

29 (MONTHLY REPORT, COPPER RIVER NATIVE ASSOCIATION

Jacquot, Joe, Lueck, Sprecker
In Chief

1 MARKED EXHIBIT 157)

2 (STATISTICS RE ALCOHOL, TRAFFIC, PROPERTY
3 DAMAGE OFFENCES 1971-1972 MARKED EXHIBIT 158)

4 THE COMMISSIONER: We can
5 maybe stop now for 10 or 15 minutes for coffee.

6 (PROCEEDINGS ADJOURNED AT 3:50 P.M.)

7 (PROCEEDINGS RESUMEED AT 4:10 P.M.)

8 MR. GOUDGE: Sir, we could
9 resume. Mr. Veale has advised me that that has completed
10 the evidence this panel has to offer in chief. Before
11 we proceed any further, I think I can tell you, sir,
12 that Magistrate Sprecker will be with us again in Phase
13 4 in Yellowknife. Mr. Bayly will be calling him there
14 as a witness, and he will be there available to give
15 evidence in chief for Mr. Bayly and to be cross-examined
16 in full by any participants who wish to do so.

17 I have high hopes that that
18 will allow him to escape without having any or at
19 least few questions asked of him today. Perhaps
20 with that, sir, we could ask whether any of the
21 participants do wish to cross-examine this panel?

22 MR. MARSHALL: Mr. Commissioner,
23 we do have some cross-examination of Magistrate Sprecker.
24 I should point out that we did receive late a very
25 brief synopsis of the points that he was to deal
26 with, and there is quite a bit of statistical informa-
27 tion in his evidence, and I'm pleased to hear through
28 Mr. Goudge that Magistrate Sprecker will be back with
29 us again, and we might chat with him later.

30 My practice has never really

Jacquot, Joe, Lueck, Sprecker
In Chief

Cross-Exam by Carter

1 included much criminal work, but Mr. Carter's has and
2 he has always longed to have a chat with a magistrate,
3 and I'd like to turn things over to Mr. Carter.

4 THE COMMISSIONER: All right.

5 MR. CARTER: If it's any
6 consolation, sir, I've never cross-examined a magis-
7 trate before.

8 CROSS-EXAMINATION BY MR. CARTER:

9 Q To begin with, I wonder,
10 sir, if I could ask you to just go over to the map
11 and point out where Glennallen is, and perhaps as
12 well outline the Alyeska route and the highways in that
13 area.
14

15 A As you can see, this is
16 the Big Delta area. Glennallen lies 157 miles south
17 of Big Delta, which would be your cut-off for one of
18 your alternate routes. Glennallen lies 117 miles north
19 of Valdez, right in the centre of this particular
20 stretch. Valdez covers approximately to here on the
21 pipeline. I cover approximately to here, between the
22 Alaska Range and the Chugach Range. This is the area
23 that I particularly cover. The highway runs parallel
24 to this pipeline route, this is the Alyeska and the
25 highway system.

26 Q There's other highways
27 in the area?

28 A This is the Glenn Highway,
29 the major extension of the Alcan Road, and then the
30 cut-off from Tok to Glennallen to Anchorage. So it

Jacquot, Joe, Lueck, Sprecker
Cross-Exam by Carter

1 is a huge X highway system here, the major highway sys-
2 tem of Alaska. The only other ones are down here on
3 the peninsula, as far as the Kenai area.

4 Q Thank you. How long
5 have you resided in Glennallen, sir?

6 A Ten years.

7 Q Could you be a little
8 more specific in the population change that you've
9 found since arriving there?

10 A Yes, in 1966 when we
11 came to Glennallen, there was approximately 400 people.
12 In 1970 the census was 650, the federal census. 1973,
13 I am also the fire chief of the local Volunteer Fire
14 Department, we conducted our own census and we found
15 797 in a small area of what we considered Glennallen
16 proper. Glennallen is not a community as such, it is
17 a highway crossroads, and it is strung out about
18 12 miles on those three existing roadways. The
19 population since '73 has escalated to where now the
20 basin population is somewhere in the neighborhood of
21 6,000, if you start including the camps it jumps to
22 almost 10,000.

23 Q I won't ask any statis-
24 tics about about fires.

25 A We haven't had very many,
26 so far.

27 Q Would you say then that
28 the very dramatic increase in population is the result
29 of the location of Glennallen at the crossroads of
30 these highways?

Jacquot, Joe, Lueck, Sprecker
Cross-Exam by Carter

1

2

A I would think so, yes.

3

4

5

Q Could you run through for me again the facilities that are located in the area that are connected with the Alyeska line?

6

7

A You mean the different camps?

8

9

Q Yes, and the distances from Glennallen.

10

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A I think in Glennallen itself there is one construction camp, 1,150 men. There is also one pump station camp. We don't have compressors, these would be simply pump stations, similar, I would imagine. I think that's a 200-man camp, and that is just beginning construction, they are just now in preparation of that. Tonsina, which is approximately 40 miles south of Glennallen, has an 1,800-man camp. ~~Paxson~~ camp or Isabelle camp is 75 miles north of Glennallen, it is also an 1,800-man camp; they also have a pump station there with approximately 200 men. There are a total of five camps in the service area that I cover.

23

24

25

Q And I take it that a lot of the traffic in connection with these camps would pass through Glennallen?

26

27

28

29

30

A Yes.

Q Could you, for me, describe the distinction between misdemeanors and felonies that we don't have in our system, so that I can get a better feel for what types of offences would be included in

Jacquot, Joe, Lueck, Sprecker
Cross-Exam by Carter

1 those categories?

2 A Misdemeanors would be
3 your lesser offences like assault and battery, petty
4 larcenies, driving while under the influence, all
5 traffic regulations are classified as criminal misde-
6 meanors in the State of Alaska. Felonies would be your
7 more serious offences -- armed robbery, murders, what
8 have you, grand larcenies, this type of thing.

9 Q And of the misdemeanors,
10 highway-related offences, I take it, are a large
11 proportion?

12 A Yes.

13 Q Again as a result of the
14 location of Glennallen.

15 A Very definitely so, it's
16 the highway centre.

17 Q Now, as I recall, the
18 statistics showed that Valdez had not had the increase
19 in amounts of crime that Glennallen has experienced.

20 A That is correct.

21 Q Would it be fair to
22 assume from that that perhaps Valdez, being only a
23 starting point rather than a crossroads, would have
24 less impact upon it?

25 A I am not sure of the
26 reason. I can give you a speculation.

27 Q Fine.

28 A We're on the record,
29 aren't we?

30 THE COMMISSIONER: Well, if
you want to speculate you won't be the first one.

Jacquot, Joe, Lueck, Sprecker
Cross-Exam by Carter

1 A All right. The area around
2 Glennallen started in 1970 with one State Trooper
3 serving 1,275 miles of highway and approximately 2,000
4 people in that highway system. Today there are 26
5 State Troopers serviced out of Glennallen as detach-
6 ment headquarters. Included in that would be the City
7 of Valdez, which has three troopers in residence and
8 seven city policemen. 24 State Troopers contribute
9 to the case load at Glennallen and three contribute
10 to the case load at Valdez, plus the seven policemen.
11 That is some of it. The rest of it would be the fact
12 -- and this is purely speculation -- that the City
13 Council does not wish too much prosecution in the City
14 of Valdez.

MR. CARTER:

15 Q I see. I expect an
16 example of the first speculation would be the fish
17 and game offences when you had no fish and game officer.

18 A If there was none there,
19 no offences were recorded.

20 Q I see.

21 A I'm sure there were some
22 offences.

23 Q What sort of a delay is
24 there in the time between an offence being committed
25 and it appearing in your statistics?

26 A On some of these that I
27 brought with me, these were cases filed, not necessar-
28 ily cases that had been completed. Usually they are
29 filed -- well, if they're under arrest we have a 24-
30 hour time limit they must come before me within 24

Jacquot, Joe, Lueck, Sprecker
Cross-Exam by Carter

1 hours. If it's going to trial, if they plead not guilty
2 and wish to go into trial, we have a four-month rule,
3 they must be tried within four months. So a completed
4 case could continue for approximately four months,
5 uncompleted.

6 Q So that when you gave us
7 statistics for a particular period of the year, the
8 offences would have been committed in that period of
9 the year.

10 A Yes.

11 Q Can you account for the
12 fairly large increase in case loads during the summer,
13 April 1st - July 26th?

14 A The construction became
15 at full strength during that time, and the camps became
16 up to full strength during that time.

17 Q More so than during the
18 winter?

19 A Yes, the camps in the
20 winter were operating at a quarter strength, December,
21 January, February, March; starting in March they began
22 to put in more workers. The camps at this particular
23 time are at full strength, all the three major camps
24 and the two pump station camps are just beginning.
25 So therefore the increase was due to the numerical
26 increase of people in the area.

27 Q I see. Would you expect
28 to find that part of this would be the result of summer
29 months just being more conducive to fellows being
30 around with not much to do except get into trouble

Jacquot, Joe, Lueck, Sprecker
Cross-Exam by Carter

1 in longer daylight hours?

2 A It would have some bear-
3 ing, I'm sure, the longer daylight hours.

4 Q What about tourists in
5 the area?

6 A There are some. Like I
7 mentioned earlier, the State Troopers are compiling
8 a listing of those that would be pipeline-related in-
9 stances, and in that they will show those who are
10 tourists, those who are local residents, as such,
11 those who are pipeline. That is not completed at this
12 time, but that will be hopefully by the Yellowknife
13 hearings I will be able to break down and say, you
14 know, there were 800 tourists through Glennallen on
15 July 25th, there were, this type of information. Hope-
16 fully I will have that at that time.

17 Q Do you expect that at
18 least some of these people who are not exactly tourists
19 but would come up in campers and whatnot will be gone
20 come colder months?

21 A I hope so, yes. I'm
22 sure they will be, I don't know how they can exist.
23 We have 60 below weather. There's no way they can
24 camp out during that kind of weather.

25 Q So Arctic Gas may not
26 have that problem, firstly because of the relative
27 absence of highways and the fact that they will be
28 constructing in the winter.

29 A I'm sure that will have
30 some bearing on it, yes.

Jacquot, Joe, Lueck, Sprecker
Cross-Exam by Carter

1 Q Could you tell us what
2 policy Alyeska has with respect to bringing workers in
3 and out of the camps?

4 A You mean from outside,
5 from the south 48?

6 Q Yes.

7 A There is a residency
8 law established by the Legislature of the State of
9 Alaska that you must be a resident to hold employment
10 on the pipeline; but the Legislature in its wisdom
11 decreed five different criteria for residency and you
12 can take either one of these five and become a resident.
13 If you want a fishing licence you must reside a year in
14 the state; if you want a driver's licence you only need
15 to be there, just come in; if you wish to vote, you
16 only have to be a resident 30 days; so there are a
17 number of criteria for that. So Alyeska has brought
18 in the southern workers, people from Texas and Oklahoma.
19 I don't want to hear another "you all".

20 (LAUGHTER)

21 This has been a small problem. Their policy of bring-
22 ing people in, though, has been they fly them into
23 Anchorage, Valdez or Fairbanks and then transport them
24 by their own busing services to the respective camps.
25 Then I think from Fairbanks most of them are flown to
26 the North Slope area. The local percentage of residents
27 is something like 20% of the total work force must be
28 native workers. I think there are 16,000 workers on
29 the pipeline today, and about 3,000 or 3,500 are native
30 workers, not Alaskan residents but native people, and

Jacquot, Joe, Lueck, Sprecker
CrossExam by Carter

1 then perhaps another 20% would be local people who have
2 taken jobs on the pipeline throughout the entire
3 length. That probably doesn't answer your question.

4 Q I take it they do not
5 have a policy of bringing southern workers in and then
6 taking them out as soon as their work stint is completed?

7 A What they've been doing,
8 you see the camps are set up in different stages.
9 Now the Valdez area is the terminal site, so that is
10 a pretty stable work force, these are men who are
11 pouring concrete, setting up the huge terminal storage
12 tanks, the piping system after the shipping facilities,
13 this type of thing. They will be there several years,
14 Now the Glennallen camp, Tonsina camp, and Isabelle
15 camp, which are the three in my area, Tonsina camp
16 has almost completed their pipe-laying section. They
17 have approximately 36 miles finished. Those workers
18 will then move to the Glennallen camp and commence from
19 their section. When they are completed they will move
20 to the Isabelle camp and complete it. Now these would
21 be specialists like the welders, the men who are ty-
22 ing into the support system, vertical supports on the
23 overland pipe, and the heavy equipment operators --
24 I don't know what they call the machines that lift the
25 pipe and lay it into the trenches but these are
26 specialists that they have. Those men go from camp to
27 camp. The construction workers who build the roads,
28 the pads, this type of thing, yes they rotate quite
29 frequently. Some of them stay quite a long time;
30 some of them rotate very quickly.

Jacquot, Joe, Lueck, Sprecker
Cross-Exam by Carter

1 Q What happens to them when
2 they finish their say two weeks on the job, do they
3 go back south?

4 A Yes, some of them do.
5 Some of them stay.

6 Q So it's not company
7 policy that they are required to --

8 A No, no, not a "you will
9 leave Alaska" type thing, no.

10 Q I see. You've mentioned
11 the welders, and I wondered in the short summary that
12 Mr. Veale gave us there is a reference to pay scale
13 range from \$7.50 an hour to \$30 per hour. Have you
14 a particular type of employment in mind when you refer
15 to \$30 per hour wage?

16 A That would be in the
17 welders and the skilled operators on these special
18 equipment, and I take this figure from two sources,
19 (1) when the State of Alaska has a public defender
20 agency wherein if a person is indigenous we appoint
21 attorneys for them to represent them in Court, and
22 they must fill out an affidavit stating their financial
23 status, and of course if a guy comes in with a southern
24 accent and pointy toe boots I immediately conclude he
25 does not need the services of a public defender office,
26 but I have to verify that, so I ask him to fill out
27 these affidavits and that is usually the pay scale that
28 they list, \$30 per hour.

29 Q I see.

30 A Now the other source is

Jacquot, Joe, Lueck, Sprecker
Cross-Exam by Carter

1 the fact that the pipeline jobs are advertised, some-
2 thing of that nature.

3 Q Do you take these boots
4 for bail, anything like that?

5 A Only the silver buckles.
6 You haven't had any Texas influence here yet, have you?

7 Q I take it we don't want
8 any, either.

9 A I don't want to prejudice
10 you against Texans.

11 Q If I could deal for a
12 moment with alcohol relation to these offences, did
13 I understand you to say that there has been an increase
14 in alcohol-related offences from 20% to 50%?

15 A Yes, that would be a fair
16 estimate, and it's probably a little higher than that.

17 Q Could you say what type
18 of people these were? Were these workers on the pipe-
19 line?

20 A 80% of them would have
21 been workers on the pipeline.

22 Q And they would have been
23 from the south?

24 A Well, mostly yes, but
25 they're from all over, they come from the East Coast,
26 the midwest, the south, Idaho, Oregon country.

27 Q By south you mean --

28 A South 48, yes.

29 Q You referred to the
30 native problem with alcohol. Have you noticed any

Jacquot, Joe, Lueck, Sprecker
Cross-Exam by Carter

1 change in that?

2 A It has risen slightly.

3 I did ask the Alcoholic Counsellor for our particular
4 area if he could give me some statistics. He did not
5 have them completed on the native problem with that
6 particular thing. He did make the comment that the
7 natives who are working on the pipeline are making
8 more money and are spending most of it on new automobiles
9 and alcohol, those two items in particular he mentioned.
10 They would buy a new car and then turn around and
11 become involved in alcohol driving and usually wind
12 up in some type of accident or injury through that.
13 That has been a problem in the native people, one in
14 particular.

15 Q Apart from driving-
16 related offences, with respect to the natives and
17 alcohol, I take it that you wouldn't be able to say
18 if there's been an increase more than there could be
19 accounted for in an increase in the native population?

20 A I don't think so. I
21 think you're referring to something like family dis-
22 putes or natives in fights or something like this.

23 Q Yes.

24 A I don't think there has
25 been an appreciable increase.

26 Q I see

27 A I don't really think there
28 has been.

29 Q Would it be fair to say
30 that what you've told us the Alaskan experience but

Jacquot, Joe, Lueck, Sprecker
Cross-Exam by Carter

1 really you wouldn't be able to say whether or not
2 this would be applicable to the Yukon-Northwest
3 Territories?

4 A No, that I could not say.

5 MR. CARTER: I have no further
6 questions.

7 THE COMMISSIONER: Thank you,
8 Mr. Carter. Mr. Hollingworth?

9 MR. HOLLINGWORTH: Just a
10 couple of questions, if I may Mr. Commissioner.

11
12 CROSS-EXAMINATION BY MR. HOLLINGWORTH:

13 Q First of all, Magistrate
14 Sprecker, may I say I've been admiring your boots
15 ever since I've noticed you around the premises.

16 A They're not pointy toes,
17 though. I took those on bail, yes.

18 Q Magistrate Sprecker,
19 I was just looking at your figures and taking it
20 rather roughly it looks to me as if your population,
21 according to your testimony to Mr. Carter just now,
22 your population has gone from approximately 800 people
23 in 1973 to something like 10,000 now, if you include
24 the camps.

25 A That would be correct.
26 That is not Glennallen proper, that's the Copper River
27 Basin, which is^a 70-mile area.

28 Q And of course you've
29 related a substantial increase in the number of various
30 offences. Is it your feeling that the number of offences

Jacquot, Joe, Lueck, Sprecker
Cross-Exam by Hollingworth

1 has gone up out of proportion to the increase in
2 population?

3 A Not necessarily so.

4 Q Do you have any more
5 concrete conclusion than that? Have you made any
6 correlation between offences and the population
7 increase?

8 A No, I have not set a
9 percentage into that, no, I have not.

10 Q Then you wouldn't neces-
11 sarily disagree with me if I suggested that it looks
12 from rough calculations as if the number of offences
13 has not gone up proportionately as to what you would
14 expect with the rise in population.

15 A I probably would agree
16 with that.

17 Q And speaking of pay scales,
18 you indicated, I believe, in your testimony in chief
19 that a bus driver, among others, was making about
20 \$7.50 an hour.

21 A That was the starting
22 salary, I believe, yes, 7.50.

23 Q I just wonder for a
24 basis of comparison, do you know what a bus driver,
25 say of Greyhound Bus or something like that, in Alaska
26 would be making? In other words, someone not related
27 to the pipeline project.

28 A No, but in that same vein
29 the bus line drivers for the pipeline camps, this is their
30 responsibility, to transport the workers from the camp

Jacquot, Joe, Lueck, Sprecker
Cross-Exam by Hollingworth
Cross-Exam by Bell

1 to the worksite, or to recreational areas after hours,
2 something of this nature. Their particular job re-
3 quires them perhaps anywhere from five to 30 minutes
4 of driving at six o'clock in the morning till 6:30,
5 then they wait for the workers to be finished to come
6 back to the camp and drive 30 minutes back to the camp,
7 and are being paid anywhere from 7.50 to \$11. an hour,
8 and they sit the rest of the time drawing that parti-
9 cular pay scale. But as far as Greyhound, he's working
10 the entire day for his.

11 Q But you don't know what
12 he's making?

13 A No.

14 Q All right.

15 A I almost took a bus-driving
16 job.

17 Q You sound unhappy with
18 your position, sir.

19 A No, no, I enjoy the
20 position. I have a whole drawer full of silver buckles.

21 MR. HOLLINGWORTH: O.K., I
22 don't think I have any more questions, thank you, sir.

23 THE COMMISSIONER: Mr. Anthony?

24 MR. ANTHONY: No questions.

25 MR. BELL: I just have a
26 couple of questions, sir.

27
28 CROSS-EXAMINATION BY MR. BELL:

29 Q Magistrate Sprecker, are
30 you able to comment on the rate of inflation since

Jacquot, Joe, Lueck, Sprecker
Cross-Exam by Bell

1 construction on the pipeline began?

2 A The only inflationary
3 figures I could give would be my personal chequing
4 account, if that is acceptable.

5 Q That would be fine with
6 me.

7 A For instance, we came to
8 Whitehorse on sort of a vacation. I brought my family
9 with me. We stopped down here at the local super-market
10 and they had round steak, boneless round steak on
11 sale at \$1.49 a pound. I don't know how that compares
12 with what it is normally here. I bought two round steaks
13 with me from Alaska, I brought two with me. They cost
14 me \$3.54 a pound. You can draw from that anything you
15 want to draw from it. This might have been a special
16 sale on moose or something, I don't know. Prices have
17 increased accordingly. The inflationary spiral for
18 Alaska last year was 18%. The state, as a state
19 employee we received a pay raise of 13%. This year I
20 believe the inflationary figure is 17% for the State of
21 Alaska. I have received a pay raise of 9%. I am in
22 the hole.

23 Q Does the rate of
24 inflation in Alaska, how does that relate to the rest
25 of the U.S.?

26 A I believe it's slightly
27 higher. Our gas -- I don't know what you pay for
28 gasoline as such here, you have the Imperial gallon,
29 I'm not sure how that would break down, but I paid
30 \$1.05 over at Destruction Bay, I think, for that gallon.

Jacquot, Joe, Lueck, Sprecker
Cross-Exam by Bell

1 We are selling gasoline for about 77¢ a gallon, and
2 two years ago it was 56, but of course there has been
3 a big jump in the oil prices too.

4 Q So as you say, as a
5 result of inflation you are in the hole.

6 A Yes.

7 Q Presumably that would
8 apply to other people who do not have pipeline related
9 employment.

10 A I think so in certain
11 areas. Now I'm in a unique position, the Court system
12 requires me to divulge all sources of income other than
13 what they pay me. My wife does not work. We have
14 little children so she is home with those, so in that
15 vein I am in the hole. If she was working we would be
16 financially fixed, as they say, and we would not have
17 any struggles. I am paying all my bills, but I am not
18 gaining anything on the inflationary strata.

19 Q You mentioned that of
20 the 16,000 employees on the pipeline, approximately
21 3,500 were natives. Is that correct?

22 A Yes, that is a state
23 formula required by law, they must meet that figure
24 constantly.

25 THE COMMISSIONER: By "native"
26 do you mean --

27 A Alaskan natives.

28 Q Eskimos?

29 A Eskimos and Indians.

30 MR. BELL: Q Do you know of

Jacquot, Joe, Lueck, Sprecker
Cross-Exam by Bell

1 all natives in Alaska what proportion work on the
2 pipeline?

3 A No, I do not.

4 Q Can you tell me anything
5 about the length of time that natives remain in pipeline
6 employment?

7 A That depends on the
8 individual. I give you a correlation between the southern
9 workers, the south 48 people. Their turnover ratio is
10 30 days, this is what they are expecting, and they find
11 that the natives are probably working a little longer
12 than what these people are coming up from the south 48.

13 THE COMMISSIONER: Do you say
14 that the average period that a man is employed who
15 comes from the southern 48 is 30 days?

16 A Yes sir, the turnover
17 rate is something fantastic, on the pipeline project.
18 The local residents who are perhaps non-native are,
19 I know several who have worked nine or ten months
20 straight through on these 7/10s, and this type of
21 thing.

22 MR. BELL: Q Are you able to
23 comment on the economic situation of the native
24 population generally before the pipeline came?

25 A Only from my experiences
26 in Court, again relating to the fact that we appoint
27 public defenders for indigenous people, and the natives
28 I would say 99% of the natives who came into my Court
29 received a public defender as their attorney because
30 they could not afford it. That percentage is probably

Jacquot, Joe, Lueck, Sprecker
Cross-Exam by Bell

1 now 60% of the natives are receiving the public defender
2 because they are now employed on the pipeline or rela-
3 ted activities.

4 Q Do your statistics on
5 offences include the crimes that are committed within
6 the construction camps?

7 A No. Those figures are
8 not available to the judicial or law-enforcement system.

9 Q Why is that?

10 A That's Alyeska policy.
11 Any crimes committed in the camp are referred on an
12 incident report to the Alyeska Board of Executive
13 Directors, and they take any -- what's the word I want?
14 -- action against the workers themselves. They do not
15 turn it over to prosecution. That has created tremen-
16 dous problems.

17 THE COMMISSIONER: Is that by
18 agreement with the state? Isn't the state responsible
19 for law enforcement?

20 A Yes sir. The camps are
21 considered state property. We have had a tremendous
22 problem with the Alyeska Pipeline people saying, "We'll
23 keep this in-house. We will not take our troubles out."
24 These are figures I cannot back up, but they give you
25 an idea of what is transpiring. The police have told
26 me they estimate a theft ratio in the camps of 10 to
27 \$1,200 per day, of merchandise, chain saws, radios,
28 typewriters, personal transceivers, gasoline supplies,
29 this type of thing. None of that is brought to the
30 attention of the State Troopers. If it is a violent

Jacquot, Joe, Lueck, Sprecker
Cross-Exam by Bell

1 crime such as an assault, an aggravated assault, this
2 is normally turned over to the Troopers; but if it is
3 a property crime, they do not turn them over. There is
4 an incident report filed and unless one of the security
5 guards would happen to turn it over to a Trooper,
6 it would never come to light.

7 Q So these camps have their
8 own security force.

9 A They do, but they have
10 no arrest authority, and no law enforcement powers,
11 other than camp security, seeing the gates are closed
12 and patrol the fence perimeter, and leaving unauthor-
13 ized vehicles in and out of the camp, this type of
14 thing.

15 MR. BELL: Those are all the
16 questions I have, sir.

17 THE COMMISSIONER: Mr. Bayly?

18 MR. BAYLY: I'd like to ask a
19 couple of questions of Magistrate Sprecker, although
20 I am still prepared at a later time in the fourth phase
21 to have the magistrate come back to give further
22 evidence.

23 THE COMMISSIONER: Well, unless
24 someone objects, I think it's all right for you to ask
25 a couple of questions and then call him as your own
26 witness at a later stage.

27 MR. BAYLY: All right, thank
28 you, sir.

29 THE COMMISSIONER: Any objection
30 to that, Mr. Marshall?

Jacquot, Joe, Lueck, Sprecker
Cross-Exam by Bayly

MR. MARSHALL: No sir.

THE COMMISSIONER: Mr. Hollingworth?

MR. HOLLINGWORTH: No sir.

THE COMMISSIONER: Mr. Goudge?

MR. GOUDGE: No sir.

THE COMMISSIONER: Well, I won't ask the others.

CROSS-EXAMINATION BY MR. BAYLY:

Q Magistrate Sprecker, could you tell the Commission, please, if there have been any impacts in the community from the point of view of pipeline workers using the community for recreation?

A Not really because Glennallen has no recreational facilities.

Q All right, when you mean that, is that bars or --

A We have three bars in the immediate Glennallen area, no movie theatre, no roller rink, bowling alley; we have two good fishing streams which I consider recreation. Sitting in a bar bending my elbow doesn't appeal to me. I'm the other type.

Q All right, in terms of your own experience then, have you found any impact on your fishing streams from the influx of pipeline workers?

A Somewhat, yes. We have a salmon run in the Glennallen area of kings -- I believe

Jacquot, Joe, Lueck, Sprecker
Cross-Exam by Bayly

1 you call then chinooks here -- that they closed the
2 season because of the heavy fishing pressure this year.
3 I cannot say how many of those were pipeline fishermen
4 as related to military people, tourists and what have
5 you, but this is the first year in ten years that the
6 season has been closed this early. The run was down
7 somewhat, biologically speaking the run was small, and
8 they felt that the pressure upon it would be very
9 -- was very dangerous at this time. So in that way, yes,
10 there has been some impact.

11 Hunting pressure, somewhat,
12 but Glennallen is in a basin, on a plateau in a basin
13 surrounded by mountains, most of the hunting is in those
14 mountains. The hunting pressure is just now beginning
15 because the season just started before I left. So I
16 can't say how much pressure will be from the camps as
17 such. Several of them have taken bear, which was open,
18 earlier seasons which were open, but not really a
19 strenuous effect upon the recreational facilities.

20 Q I understand the
21 regulations and laws of the State of Alaska are that
22 game can be hunted with a permit for an individual kind
23 of animal, which can be purchased for various prices.

24 A Yes, we have resident
25 and non-resident licence fees, and then they have tag
26 or permit fees for the different animals, yes.

27 Q I take it that none
28 of these fees is on a scale to be a deterrent to a
29 person earning a wage as you've described earlier.

30 A No, I think the highest

Jacquot, Joe, Lueck, Sprecker
Cross-Exam by Bayly

1 is on the existing animals, I think it's \$500 for brown
2 bear and muskox. The polar bear was the highest, but
3 that is now closed.

4 Q And the first year when
5 any impact might be seen on hunting in the Glennallen
6 area would be this year?

7 A I would think so, yes.

8 Q Of the fall hunting
9 season.

10 A Right.

11 Q Have there been any dis-
12 turbances at the camps that have come to your attention
13 in your area?

14 A We've had three, one of
15 them was classified as a riot, the other two were clas-
16 sified as disturbances.

17 Q When you say "as a riot",
18 what sort of confrontation was that?

19 A Exactly that, the incident
20 revolved around the fact that the workers were denied
21 hot lunches. The men working on the pipeline itself,
22 not the crew that was in camp, the crew that was out
23 of camp, they have rotating shifts, and they gave them
24 cold lunches to take with them. The men came into the
25 dining hall and began to take steaks out of the freezers
26 and said they would fix their own meals out on the
27 pipeline, and the cooks and culinary workers said, "No,
28 you won't," and they had a riot. The cooks and
29 culinary workers lost.

30 (LAUGHTER)

Jacquot, Joe, Lueck, Sprecker
Cross-Exam by Bayly

1 The pipeliners are very strong individuals. We had
2 40-some injuries in that particular incident, all
3 minor injuries, you know, small stitching required,
4 black eyes, bloody noses type of thing. The other
5 two were minor disturbances in the same vein over food
6 again, in the Tonsina camp and the Glennallen camp also,
7 where the workers did not get the foods that they thought
8 they should have, and upset tables and broke dishes,
9 this type of thing.

10
11 Q Were these things that
12 came to your attention as a magistrate, or did they not get
13 into the courts?

14 A The Alyeska people would
15 not prosecute. It came to my attention through the
16 investigation of State Troopers but there was no
17 prosecution action taken at all on either incident.

18 Q Now you have given
19 evidence earlier on the working conditions as they were
20 supposed to be, according to the hearing that you went
21 to in 1973 with regard to alcohol, guns, and other
22 things in the camps.

23 THE COMMISSIONER: Families.

24 MR. BAYLY: Families.

25 THE COMMISSIONER: Those were
26 the three items, I think.

27 MR. BAYLY: That's correct.

28 Q And as you say it was
29 the union pressure that had caused that promise by the
30 pipeline company to be altered.

A This is correct. The

Jacquot, Joe, Lueck, Sprecker
Cross-Exam by Bayly

1 pipeline people held public hearings similar to this,
2 but not on an Inquiry basis, it was simply a public
3 information type hearing that they conducted throughout
4 the state, and at that time they made certain promises
5 and statements that, "We will not allow firearms,
6 alcohol, of course there will be no families in the
7 area." And the unions conducted a meeting in Washing-
8 ton, D.C., with Alyeska, several of the Federal Labour
9 Board people and this type of thing. The firearms
10 is the only one that they have even tried to enforce.
11 That one they have made some effort to keep under con-
12 trol due to the fact that the men are working under
13 tremendous pressure and firearms are very handy release
14 items, and the alcohol has been totally dropped. There
15 are no restrictions whatsoever on alcohol, and there
16 has been very little prosecution on any drugs. Every-
17 thing from marijuana through to heroin in the camps,
18 and the restriction there has been very minimal.

19 Q With regard to drugs, do
20 you see drug offences appearing in your Court on a
21 regular basis?

22 A Yes, we do, yes. My case
23 load on drugs is small, I feel, compared to
24 Anchorage or some of the larger cities, but I think
25 we had about 45 drug cases in the last two years.

26 Q I understand that the
27 state laws in Alaska with regard to possession of
28 marijuana are different from the ones in force in
29 Canada.

30 A Oh yes, especially since

Jacquot, Joe, Lueck, Sprecker
Cross-Exam by Bayly

1 the last month and a half. Possession of marijuana in
2 a quantity for your own use is permissible now in the
3 State of Alaska, in your home. That's not Justice
4 Robanowitz -- the Alaskan population has so far accepted
5 that particular ruling by the Supreme Court without too
6 much feed-back. The possession in a vehicle, possession
7 in public is still a misdemeanor offence. The serious
8 drugs has not really been that bad, but there have
9 been some where there was none before.

10 Q Now, I understand that
11 when the first section of pipeline was opened in the
12 Glennallen area, that you attended that ceremony and
13 that an incident took place shortly thereafter. I
14 wonder if you would describe that to the Commission?

15 A I don't know if they heard
16 about that, that's the infamous rising of the pipe.
17 They had a small technical problem of which I am not
18 aware of how it happened, but they had a big ceremony
19 where they laid 1,800 feet of pipe at the Tonsina
20 River crossing. The pipe is sunken by 19,000-pound
21 weights every ten feet. Somewhere after they buried,
22 this pipe in this trench, those weights shifted and
23 the 1,800 feet of pipe came back up with about 3,000
24 people watching.

25 (LAUGHTER)

26 Mr. Patton was embarrassed, but it was a technical
27 problem that has since been solved, I understand.

28 MR. BAYLY: I have no further
29 questions. Thank you, sir.

30 THE COMMISSIONER: Mr. Goudge?

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Cross-Exam by Bayly

1 MR. GOUDGE: Yes sir, I have
2 no questions for this panel at this time, and Mr.
3 Templeton advises that he doesn't either.

4 THE COMMISSIONER: All right,
5 well does that complete the testimony of this panel,
6 Mr. Veale?

7 MR. VEALE: It does.

8 THE COMMISSIONER: Well, thank
9 you, Mr. Jacquot, Mr. Joe, Mr. Lueck, and Magistrate
10 Sprecker, I certainly appreciated hearing from you and
11 may I be permitted to thank you for journeying to see us,
12 Magistrate Sprecker?

13 A It's been my pleasure.

14 (WITNESSES ASIDE)

15 MR. GOUDGE: Mr. Commissioner,
16 we have a rather full schedule, sir, if you permit,
17 the next panel that we, I think would call in the
18 ordinary course would be called by Mr. Anthony.

19 THE COMMISSIONER: All right.

20 MR. GOUDGE: Perhaps I
21 could amend what I just said and we could, counsel are
22 agreed that subject to what you say, sir, Mr. Bell
23 could call the evidence he wishes to call here now.
24 It's been undertaken by counsel that that evidence will
25 go in in chief, and counsel don't anticipate cross-
26 examining. That evidence, I think, would take a
27 relatively short time and perhaps could be heard now.

28 THE COMMISSIONER: Certainly.

29 MR. BELL: Yes, Mr. Commissioner,
30 I'd like to call Mr. James Wah-Shee at this time.

J. Wah-Shee
In Chief

1 I believe Mr. Wah-Shee has already been previously
2 sworn.

3 THE COMMISSIONER: Yes, he has.

4
5 JAMES WAH-SHEE, resumed:

6 MR. BELL: I should say that
7 the statement that Mr. Wah-Shee is about to give
8 was slightly amended from the summary that was issued
9 earlier, and if as a result of hearing Mr. Wah-Shee's
10 evidence, counsel wish to cross-examine, we would be
11 pleased to have Mr. Wah-Shee attend at Yellowknife at
12 counsel's convenience.

13 THE COMMISSIONER: All right.

14 DIRECT EXAMINATION BY MR. BELL:

15 Q Mr. Wah-Shee, you are
16 the president of the Indian Brotherhood of the North-
17 west Territories?

18 A Yes sir.

19 Q Do you hold any other
20 offices?

21 A Also the chairman of
22 the Federation of Natives North of 60.

23 Q And I understand you
24 are also a member of the Territorial Council of the
25 Northwest Territories.

26 A Yes.

27 Q Well then, would you
28 proceed with your evidence on alternative routes and
29 corridors, please?

30 A Yes, thank you.

J. Wah-Shee
In Chief

1 I am appearing here today on
2 behalf of the Indian Brotherhood of the Northwest
3 Territories and the Metis Association of the Northwest
4 Territories, which together represent the majority of the
5 people who reside in the Mackenzie District. I am
6 doing so because we believe the matter presently before
7 this Inquiry is an extremely important one.

8 The consideration of alterna-
9 tive routes clearly raises very important questions in
10 its own right. For the first time it puts squarely
11 before this Inquiry the possibility of avoiding using
12 the Mackenzie Valley route with all of the resulting
13 disruption of the life of the Dene. I wish to urge
14 upon you, Mr. Commissioner, that you must seriously
15 consider that possibility.

16 Beyond that, the consideration
17 of alternative routes raises in a central way the ques-
18 tion of what, if any, weight is to be given to the
19 position of the Dene that there should be no pipeline
20 before a land settlement. A reasonable conclusion from
21 the evidence given to date at the community hearings
22 is that this position is deeply felt by the Dene through-
23 out the length and breadth of the Mackenzie District.
24 Yet the applicants have tended simply to disregard this
25 issue in their evaluation of alternative routes.

26 In the case of one of the
27 applicants, Foothills, this position has changed drama-
28 tically as a result of recent statements by Mr. Blair,
29 to the effect that his company would in effect not
30 consider building a pipeline before a land settlement.

Let me say immediately on behalf of the Indian people of the Mackenzie District that we welcome this forthright statement. Time is of the essence if there is to be a just and equitable settlement of native land claims, and the position now taken by Foothills grants us that time.

Unfortunately, the other applicant, ARctic Gas, has not mended its ways, as Section 14-E on alternative corridors, nowhere^{even} mentions land claims. The press has reported Mr. Horte's response to the Foothills' statement as being that Arctic Gas supports a just and equitable settlement of native claims, but that a pipeline can go ahead prior to such a settlement without prejudicing the land claims. The applicant offers no evidence in support of what seems to me very frankly to be an absurd and preposterous position. The essence of our claim is that we, Dene, should have the right to decide what goes on on Dene land.

To start a pipeline without our consent is therefore to deny us the essence of our claim. This attitude of Arctic Gas is troubling enough, for to disregard the issue is to in fact to disregard the wishes of the Dene. Yet more troubling is that the Federal Government appears also to be prepared to choose among alternative routes without regard for our position of "No pipeline before a land settlement." I know that this is a serious charge but how else are we to interpret a recent statement by Mr. Digby Hunt, a senior official of Indian Affairs

J. Wah-Shee
In Chief

1 & Northern Development as reported in the "Toronto
2 Globe & Mail" of June 12th to the effect that various
3 development proposals, including an Arctic natural gas
4 pipeline, may go ahead before native land claims have
5 been settled?

6 I am raising this matter at
7 this time because it is intolerable to the Dene that a
8 route should be chosen for a pipeline with, in effect,
9 no weight whatsoever given to our wishes.

10 In my view, no justification
11 exists for this irresponsible position.

12 To begin with, Arctic Gas, in
13 their submission, presents data on the capital costs
14 and operating costs of the alternative routes and then
15 opts for the Mackenzie Valley route as the cheapest
16 route because it will be least burdensome to the
17 consumers. But in costing alternatives, from the public
18 interest point of view it is clearly not adequate to
19 rely on costs to the corporation as estimated by the
20 corporation. The social costs and environmental costs
21 of the proposed Mackenzie Valley Gas Pipeline will be
22 borne by Canadians, and specifically by the native
23 people of the Mackenzie District who I represent.
24 No matter how much expert evidence the applicants pro-
25 duce on this matter -- and there are, of course, other
26 experts with conflicting evidence -- the hard fact
27 remains that it is the people themselves who are in the
28 best position to assess the social costs. I remind you
29 again, Mr. Commissioner, that the evidence of our
30 people as presented to date in the community hearings

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1 has overwhelmingly indicated that the pipeline will
2 cost them too much and even risks their very destruc-
3 tion as a people.

4 Arctic Gas claims on the
5 basis of estimates they themselves have made that the
6 Mackenzie Valley route is the least costly. But least
7 costly to whom? Firstly to them. Secondly to the
8 consumers, a large portion of whom are Americans. To
9 we, Dene, however, it is the most costly route. In
10 effect, Arctic Gas is deciding who will pay the costs
11 and they are simply arbitrarily choosing to serve the
12 interests of Americans and Southern Canadians rather
13 than we, the native people.

14 But we Dene are Canadians too, and we say to you and
15 through you to the Government of Canada and the people
16 of Canada that the social cost of the Mackenzie Valley
17 route is unacceptably high. Given the role of American-
18 controlled companies within the Arctic Gas consortium,
19 it may be no surprise that the interests of Americans
20 are given more weight than the interests of those
21 Canadians who are Dene. It is less obvious, however,
22 why the Government of Canada, acting in the Canadian
23 interest, is apparently willing to sacrifice our inter-
24 est to serve the American interest. It is certainly in-
25 consistent with the government's position that the
26 needs of native people are the No. 1 priority of its
27 northern development policy. For who can judge our
28 needs better than ourselves?

29 Nor, as I understand it, is it
30 not self-evident that the interests of Southern Canadians

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1 compel the building of the Mackenzie Valley pipeline
2 as soon as possible. We know that there are large proven
3 reserves of natural gas in Alaska, and the main purpose
4 of Arctic Gas Pipeline is to move those reserves to
5 the mainland United States . We know that the proven
6 reserves in the delta are very much less and may not
7 warrant tapping, at least at this time, were it not that
8 they can be piggy-backed with Alaska gas. We know
9 that there is an alternative proposal put forward by El
10 Paso to move Alaska gas alone. We know that there is an
11 alternative proposal put forward by Foothills to move
12 delta gas alone, although they appear willing to also
13 move Alaska gas if required by the government to do so.
14 In any event, what is missing from the discussion is
15 a clearly thought-out proposal to move Alaska gas
16 alone across Canada to the United States. Arctic Gas
17 simply asserts that its basic purpose is to transport
18 natural gas from both Northern Alaska and Northern Canada
19 to markets in both Canada and the United States, and
20 that the alternative routings studied by the applicant
21 were chosen with this same purpose clearly in mind.
22 By their own admission, they have not properly considered
23 moving Alaska gas alone to the American markets. But
24 is it not at least possible that it would be feasible
25 to do this without using the Mackenzie Valley route?
26 And do not we Dene whose lives are to be disrupted
27 at least have the right to demand that all alternatives
28 be fully considered? If Arctic Gas is not willing to
29 do this, and I assume that is their privilege, does not
30 the Government of Canada have an obligation to do so?

We would, of course, still be

These matters are not directly before this Inquiry, but it is a fact that there are experts who disagree with Arctic Gas and it is a matter of simple arithmetic that tough conservation measures and the phasing out of exports to United States would tend to lessen any shortage.

Beyond that, there is a recent statement by the Minister of Energy of Alberta, the Honourable Donald Getty, as reported in the press, in which we understand him to have said that Alberta would be willing to increase its supply of gas to Central and Eastern Canada and thereby avert what is said to be an immediate gas shortfall. That would then put off the day when gas reserves from the Mackenzie Delta would be needed in Southern Canada. Again this offer is very much welcomed by us. The reason, of course, is because it would permit more time to negotiate a land

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1 settlement, and this matter is, I submit, relevant to
2 this Inquiry at this time.

3 The thrust of my argument is
4 that we are being invited to consider alternative
5 routes without proper consideration of demand of the
6 native people of the Mackenzie District that there
7 be no pipeline before land settlements. In fact,
8 however, there would now appear to be a proposal by
9 the Government of Alberta that would permit more time
10 to negotiate a land settlement. It would also permit
11 time to study properly all alternative routes.

12 We do realize, of course,
13 that Mr. Getty has a swap arrangement whereby addi-
14 tional exports of Alberta gas to Central and Eastern
15 Canada would be offset at a later point with gas from
16 the Arctic, and with respect to Foothills proposal not
17 to build a pipeline before our land settlements, we
18 do realize that should sufficient reserves materialize
19 in the delta, Foothills would want to build its pipe-
20 line. I am in no position at this point in time to
21 offer any guarantees as to what the Dene will say about
22 a pipeline at some future time. It is surely evident,
23 however, from the evidence presented in the communities
24 that there is overwhelming opposition by the Dene to
25 a pipeline before a land settlement. I can only say that
26 it would seem to me impossible for there ever to be
27 greater opposition to a pipeline than there is now.
28 Furthermore, an equitable land settlement would permit
29 our people to judge the alleged merits of a pipeline in
30 and of itself within the concepts where we would have a

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1 great deal more control than we presently have.

2 Finally, it would permit time
3 for proper study of alternative routes, and even in the
4 case of a pipeline to carry delta gas alone to Canadian
5 markets, it is of course not necessary to take a route
6 which runs so close to so many of our communities.

7 By arguing that there are alter-
8 native ways to meet Canadian needs, I do not mean to
9 imply that there are not southern Canadians who would
10 be prepared, if necessary, to make some sacrifices
11 rather than rush roughshod over the rights of native
12 people. I know there are such people and we welcome
13 their support. I see no evidence, however, that their
14 views are given any weight by the pipeline companies,
15 but one would hope that they will be listened to by the
16 Government of Canada.

17 As well, by arguing on behalf
18 of the Dene against the Mackenzie Valley route, I am
19 not arguing for some other route and thereby wishing
20 this pipeline on other native people. Quite the contra-
21 ry. I am calling for proper consideration of alternative
22 routes and that would include the same listening to the
23 views of native people affected as we Dene are demanding
24 in the case of the Mackenzie Valley route.

25 I fully support the position of
26 the Council for Yukon Indians that has just been present-
27 ed here. We northern native people are all members
28 of the Federation of Natives North of 60, and as
29 president of the Federation, I can assure you that we
30 stand together and united against any pipeline that

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1 prejudices the native interests. If the need for a
2 land settlement is not properly assessed in weighing
3 alternative routes, it has further and important impli-
4 cations that must be raised at this point. What I
5 have in mind is that each day that goes by causes the
6 vested interests that want the pipeline to argue that
7 further delay is costly. They begin by ignoring
8 our demand for a land settlement and then cite the
9 urgency of the project as justifying proceeding without
10 a land settlement. This is not an abstract fear, as I
11 understand the experience of the Cree and the Inuit
12 James Bay. It is well-known that the original people
13 of that region were not involved in the planning and
14 go-ahead decision for that project. Just as we Dene
15 were not consulted by any pipeline consortium before
16 announcements were made of the intent to build a pipeline
17 in the case of James Bay, inadequate impact assessment
18 and evaluation of alternatives are also historical
19 facts. By the time alternatives less costly to the
20 native people were researched and brought forward the
21 James Bay corporation was able to argue that its inves-
22 tment to date was an over-riding consideration. Not
23 only did this result in a more destructive project
24 than might have been the case, but more important still
25 from our point of view, it forced the James Bay Cree
26 whose aboriginal rights remained unextinguished, to
27 negotiate so to speak with a gun to their head on
28 terms which were most unfavorable to their interests.

29 We believe that the strong
30 legal position of our people following Justice Morrow's

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1 caveat decision, plus the testimony of the communities
2 to the Inquiry, is adequate reason to make a just land
3 settlement a pre-condition of any decision to build a
4 pipeline down the Mackenzie Valley. We believe that
5 unless such a condition is made very clear to the Fed-
6 eral Government and the people of Canada at the
7 earliest possible date, inadequate considerations will
8 be given to the social cost of the Mackenzie Valley
9 route, making its assessment in terms of the alternatives
10 inadequate. Most importantly, we believe that we
11 will be shortly -- we will shortly find ourselves like
12 the James Bay Cree, with our backs against the wall,
13 facing arguments of cost, energy crisis, and inadequate
14 time. This will then rule out the fair negotiation
15 and the just settlement of our aboriginal rights that
16 we deserve.

17 While it is true that we, the
18 Indian people, want and need time for a proper land
19 settlement, the holdup in resolving the land settlement
20 issue in the Mackenzie District is less lack of readi-
21 ness on the part of the native people to negotiate than
22 the rejection by the Federal Government of negotiations
23 of our rights around our terms. This rejection costs
24 them little because, as in the James Bay case, time is
25 on their side, not ours. Their stated goal is extin-
26 guishment of our rights, and they may believe that
27 they can do this by decree at any time. Our goal
28 is formalization of our rights and the negotiation of
29 a settlement that would enable or ensure our survival
30 as a people in the face of proposed developments like

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1 a pipeline. We can only achieve this prior to any
2 such project.

3 It is well-know, Mr. Commis-
4 sioner, that our position is that the over-riding
5 condition that we wish you to attach to the building
6 of any pipeline down the Mackenzie Valley is that there
7 be a just land settlement prior to the commencement of
8 the pipeline. What I am saying to you now is that we
9 would ask that, if and when you are of the opinion that
10 a just land settlement should be a pre-condition of
11 any pipeline down the Mackenzie Valley, you might see
12 fit to issue an interim report to the government to
13 that effect.

14 In summary, we believe that
15 your judgment to the effect that a just land settlement
16 in the Mackenzie Valley District should be a pre-condition
17 of any pipeline through that region is necessary to the
18 evaluation of alternative routes. We also believe that
19 the essence of this condition at this time allows the
20 applicants and the government to undervalue our rights
21 and downgrade the social costs which my people will
22 inevitably have to bear in the event of approval of the
23 Mackenzie Valley Pipeline.

24 I urge this upon you in
25 full awareness that you have been willing, for the
26 first time in our history, to give we Dene a full and
27 fair hearing. The problem I now see is that your very
28 virtue may work to the disadvantage of those who
29 originally pressed you to take the time necessary. I
30 have endeavored to suggest a way out of this dilemma

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1 that my people have been put in. Thank you.

2 THE COMMISSIONER: What procedure
3 do counsel agree upon now?

4 MR. GOUDGE: I think, sir, that
5 counsel have generally agreed that we move onto the
6 next panel. I haven't canvassed them as to when, but
7 I would submit, sir, that the next panel in the ordinary
8 course would be called by the Canadian Arctic Resources
9 Committee, since this week's hearing in Whitehorse is
10 being held largely as a result of their strongly
11 expressed views to you, and your ruling. I think it
12 only fair that we give them a chance to get on with the
13 evidence that they wish to present. I would submit,
14 sir, that we prevail on ourselves to have the next
15 panel and perhaps get its evidence in chief in before
16 we break for the supper hour.

17 THE COMMISSIONER: Do you want
18 to do that, Mr. Anthony?

19 MR. ANTHONY: I expect that
20 the evidence in chief and the qualification of
21 witnesses would take approximately 45 minutes. I am
22 in your hands then as to --

23 THE COMMISSIONER: Well, let's
24 carry on. I think everyone is quite willing to do
25 that. Miss Hutchinson, I think that the prepared
26 evidence by the panel of Arctic Gas should be marked
27 as an exhibit if it has not been. So also should the
28 evidence of Mr. David Joe on behalf of the Council for
29 Yukon Indians, and so also should be the statement by
30 Mr. Wah-Shee on behalf of the Metis Association and

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1 the Indian Brotherhood of the Northwest Territories.

2 (TRADITIONAL INDIAN LAND USES PROPOSED
3 PIPELINE ROUTES MARKED EXHIBIT 159)

4 (EVIDENCE OF HEMSTOCK PANEL MARKED EXHIBIT
5 160)

6 (EVIDENCE OF DAVID JOE MARKED EXHIBIT 161)

7 (EVIDENCE OF JAMES WAH-SHEE MARKED EXHIBIT
8 162)

(WITNESS ASIDE)

9 MR. ANTHONY: While the
10 logistic arrangements are being made, I could take
11 a moment to explain to you the evidence that we propose
12 to call before you over the next short while. This
13 is the first time we have had an opportunity to address
14 you or to lead evidence on this issue.

15 On the basis of the material
16 sent out, it is indicated that we would be calling
17 four panels, the first panel and the panel that we will
18 be proceeding with following when they are sworn in is
19 the presentation by the Arctic International Wildlife
20 Range, and this is a presentation which the Canadian
21 Arctic Resources has facilitated as part of their
22 policy of ensuring that those who wish to appear before
23 you on matters of concern to this Inquiry have an
24 opportunity to do so, and their presentation is being
25 presented by that Society on their behalf.

26 The second panel we have pro-
27 posed is one providing an overview of the ecology of
28 the Yukon Territory composed of Mr. Huss of Whitehorse,
29 Dr. Geist and Dr. Hughes. Unfortunately, Mr. Huss is
30 in the hospital and has had two operations in the last

1 week, and will not be able to appear. Dr. Geist will
2 be appearing as a panel by himself immediately follow-
3 ing this panel to provide an ecological overview of
4 the biological environment. Because of the timing
5 problems, we are going to defer Dr. Hughes until
6 hopefully tomorrow or Friday morning.

7 The third panel was to be of
8 Dr. Rhode, who would provide a consideration of two
9 alternate routes down the Mackenzie Valley, east of
10 the Franklin route and the edge of the shield route;
11 because of the timing problems we have experienced,
12 we will not be calling that panel at Whitehorse on the
13 understanding that we would have an opportunity to con-
14 tinue our presentation of alternate routes in the
15 Mackenzie Valley at perhaps hearings in Yellowknife.
16 I am hopeful that at that time we will have the consid-
17 eration of Foothills and anyone else who wishes to
18 present further evidence, and we will have an oppor-
19 tunity of examining the Mackenzie Valley at a hearing
20 in the Mackenzie Valley, as we have been examining the
21 Yukon alternates here.

22 The fourth panel and the one
23 that we will be proceeding with tomorrow morning is
24 a presentation on behalf of the State of Alaska, and
25 that will be made of two panelists, a Dr. Robert
26 Weedon, who is the Director of planning in the Governor's
27 Office, and Mr. Walt Parker, who is the State Commission-
28 er of Highways. So with that indication of where we're
29 going, perhaps we could commence by the first panel,
30 the presentation by the International Wildlife Range.

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1 The members of that panel
2 before you are the gentleman with the beard and no
3 tie, Dr. Andrew Thompson; Mr. Dick Leonard, the gentle-
4 man in the grey suit; and Mr. George Collins, the other
5 gentleman on the panel.

6
7 ANDREW THOMPSON,
8 RICHARD LEONARD,
9 GEORGE L. COLLINS, sworn:

DIRECT EXAMINATION BY MR. ANTHONY:

10 Q Perhaps I can start with
11 an introduction of these members to you. I believe
12 they have been sworn.

13 Dr. Thompson, if we could
14 start with you, your synopsis of your education and
15 experience in this area have been circulated, with
16 your evidence in this Inquiry, and that has been filed
17 as an exhibit with Miss Hutchinson, but perhaps you
18 could just highlight that synopsis for us.

19 WITNESS THOMPSON: Thank you.
20 Mr. Commissioner, I'm a native of Winnipeg, Manitoba.
21 I graduated from the University of Manitoba in law in
22 1948, and was admitted to the bar of that province.
23 I have the degrees of Master of Law from the University
24 of Toronto in 1954, and a Doctor of Political Science
25 from Columbia University in New York in 1962.

26 I'm a member of the Alberta,
27 Manitoba, and the Northwest Territories Bars. I began
28 a teaching career at the University of Alberta and
29 from the beginning became interested in the law of
30 natural resources, and particularly oil and gas law

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1 developm ent. I worked with a legal publishing firm
2 and in that capacity I was ganeal editor of Butterworths
3 Ontario Digest of Laws, and I'm a co-author of the
4 six-volume treatis on "Canadian Oil & Gas Law", together
5 with Mr. David Lewis, recently of the Imperial Oil
6 Company.

7
8 There is appended a list of
9 legal publications, articles in the areas in which
10 I've been interested in my work have been natural
11 resource development, and conservation and environmental
12 issues. I was a founding member of the Canadian
13 Petroleum Oil Foundation, and I'm on its Board of
14 Directors. I'm a member of the International Council
15 on Environmental Law, and a member of the Commission
16 on Environmental Policy, Law & Administration of the
17 International Union for the Conservation of Nature
18 and Natural Resources; and I'm chairman of the Canadian
19 ARctic Resources Committee, and I'm trustee of the
20 National Provincial Parks Association; and a member of
21 the Board of the Can adian Nature Federation.

22 In my work, apart from teach-
23 ing and consulting, recently I was appointed a member
24 of the British Columbia Energy Commission, and I am
25 now chairman of the British Columbia Energy Commission
26 on leave as a professor of law at the University of
27 British Columbia; and I am president of the Arctic
28 International Wildlife Range Society.

29 Q Thank you, Dr. Thompson.
30 Perhaps Mr. Leonard, you could outline for the Commission
your experience.

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1 WITNESS LEONARD: I'm a native
2 of Ohio. I was admitted to practice before the Supreme
3 Court of California in 1933, and before the Supreme
4 Court of United States in 1941. I have been in private
5 practice of law since 1933. I am president of the
6 Conservation of Law Society since 1963. I also am a
7 member of the International Council of Environmental
8 Law, that Dr. Thompson referred to, and also connected
9 with the International Union for Conservation of Nature
10 and Natural Resources at Morges Switzerland. I was
11 vice-chairman of the Commission on Legislation in 1963
12 to '69, which considered natural resource legislation
13 throughout the world. I was a member of the Committee
14 on Resolutions at the World Assembly at Banff, Canada,
15 in 1972. I was rapporteur-general covering the
16 entire First World Conference on National Parks with
17 63 nations represented in 1962, and a rapporteur or
18 reporter for the Second World Conference on National
19 Parks in 1972 with 85 national represented there.

20 I was the rapporteur-general
21 for the Arctic International Wildlife Conference at
22 Whitehorse here in 1970, when approximately 65 people
23 convened mostly from Canada and a few from the United
24 States to discuss the project that's on the map. I
25 have participated then in a follow-up conference in
26 Ottawa last October. I have been to Prudhoe Bay in
27 1959 and 1969, and just yesterday covered the route
28 from Yellowknife up down the Mackenzie Valley,
29 to get it geologically correct, to Inuvik and out to
30 the delta, and as far west so that I could see on the

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west the area that I've been to from the west. I, just as a matter of information, possibly of bias or so that you can judge my past experience, have been a member of the Board of Directors of the Sierra Club for 37 years and also a member of the Board of Directors of the Wilderness Society for the past seven years. I might say that the Wilderness Society was always greatly embarrassed and kind of dismayed at the bumper strips in Alaska that say, "Sierra Club, Go Home" when it was the Wilderness Society that brought the Alyeska pipeline suit successfully to a conclusion.

MR. ANTHONY: Thank you, Mr. Leonard. Mr. Collins, would you please outline your experience to the Commission.

WITNESS COLLINS: A Thank you. Mr. Commissioner, staff, ladies and gentlemen, my name is George L. Collins. I am a resident of California, that is in the United States. I was born in Minnesota which I mention because it is a long way from Texas. I am married and have four children. I was educated in the public schools of California, not in law, with higher training, however, in fine and applied arts at California College of Fine Arts and Crafts, then in Berkeley, now in Oakland. I entered federal conservation work in the early 1920's, served as a packer, lookout, fireguard, construction foreman, ranger, park superintendent in my early field days and later as district officer, deputy assistant director in Washington, then as project leader for various special assignments on studies

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1 for new areas, boundary adjustments, analysis of
2 area resources, and potential public uses. In this
3 connection, I participated in the initiation of the
4 Alaska Recreational Survey and directed it for ten
5 years, between 1949, actually, and 1960. As one
6 major function among several others in progress simul-
7 taneously I handled that work, and in that connection
8 I learned a great deal about Alaska physically and
9 socially. I established in federal professional
10 category as a landscape architect, which I am profes-
11 sionally. As leader of the Alaska Recreational Survey
12 I initiated field work and the recommendation initially
13 for an International Park which resulted finally in
14 issuance of public land order 2214 on December 6, 1960
15 by the Secretary of the Interior for the establishment
16 of the Arctic National Wildlife Range of land use
17 category or form considerably less restrictive than
18 that of a park or international park. I retired from
19 federal service as of December, 1960, after 33 years
20 of federal service.

21 I am the co-founder of
22 Conservation Associates, which is our own parent
23 body, parent office, and initiated a program for that
24 organization in December, 1960, just coincident with
25 my retirement, during terminal leave. Together with
26 the two original partners, I remain active currently
27 in that effort of Conservation Associates.

28 I was secretary-general of
29 the First World Conference on International Parks and
30 got my friend, Dick Leonard, to help me out. I took

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1 that work on in 1961 and early on in 1961, and stayed
2 with it through '61 and '62. I was president of the
3 Nature Conservancy of the United States, 1962 and '64
4 and I'm an honorary life member. I'm a past president,
5 now honorary vice-president of the Sempervirens Fund,
6 which has to do with the conservation of redwoods,
7 coast redwoods in California. I'm an honorary life
8 member of the Sierra Club. I hold a silver medal from
9 the American Scenic & Historic Preservation Society,
10 distinguished service award from the U.S. Department
11 of the Interior, and I am a co-founder along with my
12 good friend, Andy Thompson, and the vice-president in
13 the United States of the Arctic International Wildlife
14 Range Society. Our office in San Francisco of Conser-
15 vation Associates serves as the U.S. representation
16 for this Society. That is enough, I guess.

17 Q Thank you, Mr. Collins.

18 Mr. Commissioner, all three
19 biographies and a list of reports that the witnesses
20 will be relying on have been filed with Miss Hutchinson
21 and I should say also that the exhibits that will be
22 presented from time to time are also being left with
23 yourself and with other members of counsel.

24 Perhaps we could start then,
25 Mr. Collins, if you wouldn't mind, by approaching the
26 map of the range and explaining to the Commissioner and
27 to this Inquiry the location of the range, and in
28 particular identifying issues such as the Alaska portion
29 status, the Canadian portion, any proposed extensions
30 and any other features that you can outline that would

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1 be of interest and assistance to us.

2 A Yes sir.

3 Q Excuse me, Mr. Collins.

4 Could you turn? I think the Court reporters would
5 like to have this recorded.

6 A Yes, can you hear me?

7 All right. In 1953, '52 or '53, when my work required
8 that I prepare an official report on a proposal for
9 an Arctic International Park we had to have a map.
10 So in my drafting office in San Francisco we prepared
11 this map and it's basically an official governmental
12 document. The line that you see here, the heavy black,
13 was worked out by Dr. Lowell E. Sumner, who was my
14 associate in the work on this particular area at that
15 time. We worked this out at facilities of the Arctic
16 Research laboratory at Point Barrow after having spent
17 quite some time in the field studying. We had camped
18 at various places in this area, so in light green you
19 see the recommendation we made at that time, as to
20 Alaska. At the same time, and based on not nearly as
21 extensive field studies but on some, several flights
22 at low level which we made in this vicinity, and care-
23 ful study of existing maps that we could get our
24 hands on, we came up with this line for the Canadian
25 side, and I think that's obvious to all of you.

26 Then later on the interests
27 changed and our proposal was modified somewhat, and as
28 I say or said a moment ago, at the table the final
29 result was the establishment of the Arctic National
30 Wildlife Range rather than a National Park or Inter-

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1 national Park. But they used our same boundary, and
2 that is the way it has stayed all these years.

3 Now on the Canadian side,
4 after Dr. Thompson and I and some others met and
5 started working together and we developed the program
6 for the Whitehorse Conference of 1970. People there,
7 scientists and others who knew the country well on
8 the Canadian side, said that they felt that this line
9 was insufficient and that it should come down to the
10 Porcupine River and extend on over in this fashion to
11 this line, and then up, and enlarge this section we
12 have shown originally on the Yukon side. I thought I
13 ought to explain that to you here, frankly, so that
14 you would know how this evolved.

15 Now, still later on as the
16 Native Claims Act came into being, and we had the
17 various land use forms or designations worked out,
18 the utility corridor coming along the side of the
19 Wildlife Range -- this being the Canning River, you
20 heard reference to the Canning River, interior route,
21 and the corridor was established as a part of the
22 working out of details under the Native Claims Act
23 program, and it was presumably for the purpose of a
24 gas or oil line, or whatever utilitarian needs it might
25 serve. I've shown this. This map again is very diagram-
26 atic. I did part of this last night on the floor of
27 my room because I didn't have all the data before that
28 time, and I've shown the interior route on here roughly,
29 again diagrammatically, as I see it going across the
30 proposed International Wildlife Range, which includes

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1 these two areas, and also have shown what I learned
2 recently, is a proposal of the Bureau of Sports
3 Fisheries & Wildlife of our country and for our
4 country, for an expansion of the existing Arctic
5 National Wildlife Range. This is called the Porcupine
6 expansion, and it's about three million acres. This,
7 by the way, is 8,900,000 acres, and I don't know the
8 acreage of this portion but it's part of the 3.7
9 million acres, and I was not aware that it did not
10 come down as far as the utility corridor until I was
11 studying the papers last night; but in any case, the
12 inland route skirts it and impinges upon the Wildlife
13 Range as established and as proposed for expansion.

14 I don't -- well, this of course
15 is the coastal route here, going clear across the
16 forefront of the existing Wildlife Range in Alaska,
17 and then warping into the prime route over in the
18 Yukon. This is the prime route, of course, coming
19 across here. I've shown very diagrammatically the
20 Alyeska line down on tangent there, the so-called
21 Fairbanks corridor that comes down through the Brooks
22 Range pretty well south, and then warps over across
23 toward Dawson, I guess, and Whitehorse, and then the
24 Fort Yukon corridor. Is that enough?

25 Q thank you very much, Mr.
26 Collins. Perhaps Dr. Thompson, then, you could
27 proceed by explaining to the Commission the actual
28 development of the Arctic International Wildlife Range.

29 WITNESS THOMPSON: In October,
30 1969, I was a delegate at the Tundra Conference, which

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1 was convened in Edmonton. That was an International
2 Conference with the imposing title of Conference on
3 Productivity and Conservation in Northern Circumpolar
4 Lands. At this conference I met Mr. Collins and Mrs.
5 Doris Leonard, the wife of Richard Leonard, and Mrs.
6 Doris Leonard is one of the associates in Conservation
7 Associates, the firm which George Collins mentioned.
8

9 They explained to me at that
10 time their interest in - their long-standing interest
11 in extending the concept of the Alaska Wildlife Range
12 to cover an adjacent portion in the Northern Yukon,
13 and not long after that they wrote to me asking infor-
14 mation about the status of petroleum permits and leases
15 and mineral rights in this region. From this exchange
16 of correspondence and ideas, there ultimately developed
17 a proposal that a conference should be convened in
18 Canada to consider the feasibility of a counterpart
19 range in the Yukon.

20 Together with my Law School
21 colleague, Professors Howard Eddy, Robert Franson,
22 and Allister Lucas, and with the support of Conservation
23 Associates, I organized a conference for October, 1970
24 at Whitehorse. The proceedings of this conference
25 are reported in Volume 6 of the U.B.C. Law Review,
26 pages 1 to 107 of June, 1971, and --

27 Q A copy of that has been
28 filed.

29 A -- and I have that before me
30 and will make a number of references to it. The parti-
cipants are listed in the publication at pages 106 and

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1 107. They represented Canadian and United States
2 citizens from industry, government, universities, as
3 well as residents of the Yukon Territory, and Chief
4 Alfred Charlie of the Old Crow Band, was present, as
5 was Elijah Smith, the former president of the Yukon
6 Native Brotherhood.

7
8 The concept presented to the
9 conference was that the Northern Yukon is part of a
10 natural environment which required special protection
11 to preserve its unique values. Should a special
12 status be given to the region, similar to that provided
13 for the range in Alaska, a time might come when
14 Canada and the United States could agree on creating
15 a truly International Wildlife Range, which would
16 surely rank among the great protected regions of the
17 world. Since petroleum permits and leases had already
18 been issued, starting about 1961, covering substantially
19 all the portions of the sedimentary basins in the
20 Northern Yukon North Shore, and some exploration
21 activity was then taking place in the region, it was
22 not considered practical to suggest a National Park
23 type status, particularly because the Prudhoe Bay
24 oil discovery in 1968, just a few years before, had
25 given such prominence to the hydro-carbon potential
26 of the region. Therefore the concept envisaged the
27 possibility that natural resource developments might
28 take place in the region. But such developments would
29 be regulated so as to be consistent with primary
30 objectives of preserving the natural values of the
region.

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1 The conference passed resolu-
2 tions, and they are set forth at pages 87 to 92 of the
3 published proceedings. The resolutions were submitted
4 to the Honourable Jean Cretien, the Minister of Indian
5 Affairs & Northern Development following the conference
6 under a letter of submission, which also appears in
7 the proceedings. A foldout attachment, I might
8 mention, on the back page is a reproduction of the map
9 that is before you on the chart, with the exception of
10 showing some of the data that George Collins added on
11 the floor of his room last evening, I guess.

12 Also a legal description of
13 the area as initially proposed to the government is
14 set forth at page 104. Pursuant to one of the conference
15 resolutions I undertook the organization of a society
16 which would promote the establishment of the range in
17 the Yukon, and measures for its protection.

18 Consequently on August 16,
19 1971, a certificate of incorporation was issued pursuant
20 to the Society Ordinance of the Yukon Territory
21 creating the Arctic International Wildlife Range,
22 Canada, Society. This Society is presently in good
23 standing under the ordinance. The officers are myself
24 as president, George Collins as vice-president, and
25 Garth Evans of Vancouver is acting secretary-treasurer.

26 The Society has not attempted
27 to enlist a large membership. Instead of competing with
28 other well-established wildlife and conservation
29 organizations in Canada and the United States, it has
30 sought and received their endorsement and support.

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1 To give you some examples, at the Technical Meeting
2 in Banff, Canada, the world meeting in September of
3 '72 at the International Union for Conservation of
4 Nature & Natural Resources, a resolution was passed
5 supporting the idea of an International Wildlife
6 Range, and the terms of that resolution are set out
7 in my prepared testimony as paragraph 8.

8 Just at its recent conference
9 in Nanaimo on April 29, 1975, the Canadian Wildlife
10 Federation at its annual meeting passed a resolution,
11 the text of which is set out in my written submission,
12 endorsing, resolving that the Canadian Wildlife Federa-
13 tion adopt as an urgent national program the designation
14 of this area of approximately 10 million acres in the
15 northernmost Yukon as an Arctic Wildlife Range, as
16 proposed by our affiliate, the Arctic International
17 Wildlife Range Society.

18 To indicate the status of the
19 range currently, the proposal, I would like to read
20 into the record a letter which is addressed to Dr.
21 Gordon Nelson, president of the National Provincial
22 Parks Association of Canada, by Mr. A.D. Hunt, who
23 at the time was the assistant Deputy Minister of
24 Indian & Northern Affairs. The letter is dated April
25 16, 1974. "Mr. A.T. Davidson" it begins -- Mr.
26 Davidson then or now, I guess, is deputy Minister of
27 the Department of the Environment --

28 "has asked me to advise you of the present
29 status of the proposed Arctic Wildlife Range.

30 Impetus for the range came

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1 from conservationists at a conference in
2 Whitehorse, October, 1970. The conference sub-
3 mitted a resolution to the Governments of
4 Canada and the Yukon Territory, that an 'Arctic
5 International Wildlife Range (Canada)' be
6 established. In due course the Minister of
7 Indian & Northern Affairs endorsed the efforts
8 of the conference and promised to extend his
9 support.

10 In June 1971 the Arctic
11 International Wildlife Range (Canada) Society
12 was formed and incorporated under the Societies
13 Ordinance at Whitehorse. Dr. A.R. Thompson of
14 U.B.C. served as interim chairman until the
15 first annual meeting of the Society in Whitehorse
16 in April, 1972, when he was elected president.

17 By June 1972 the details
18 of a proposal defining the area and recommending
19 setting aside under the Territorial Lands Act,
20 designated lands for a Wildlife Range, was
21 prepared by my department. Dr. Thompson was
22 shown the draft proposal and was advised that
23 complementary action would be required from
24 the Yukon Government to establish the range
25 under the Yukon Game Ordinance."

26 If I might depart from the text of the letter for
27 a moment, an order-in-council was prepared -- that's
28 the document that was referred to, it had passed
29 justice and had met all legal requirements, designating
30 the range. Now to continue with the letter:

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1 "
2 In the meantime the
3 Commissioner of the Yukon indicated a desire
4 to examine the proposal further.

5 In February '73 the Board
6 of Directors of the Society met and were ad-
7 vised by the Departmental Representative of
8 the Commissioner's concern about the project
9 as proposed. It was agreed that officers of
10 the Society would meet with the Commissioner
11 to review the entire concept. This step has
12 not yet been taken.

13 Insofar as the Department
14 of Indian & Northern Affairs is concerned, the
15 proposal is still very much alive and we suggest
16 that consultation with the Government of the
17 Yukon be undertaken as soon as possible to
18 get the proposal moving."

19 That's the end of the letter.

20 Departing from my prepared
21 text for a moment, you will notice the reference plac-
22 ing the onus on the Society to approach the Commissioner
23 for discussions. What isn't stated there is that just
24 about the time in question, the submissions of the
25 Yukon Native Associations, with respect to land claims
26 were reaching a stage of final proposals and shortly
27 about this time the Negotiating Committee was establish-
28 ed with respect to the land claims. It was a clear
29 resolution of the conference that the proposal would
30 not in any way derogate from the rights and the pri-
vileges of the Old Crow Indians, in that area, and

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1 I think it would be true to say that the Society's
2 position has been that they would not advance any
3 further steps requiring a legal step being taken with
4 respect to that area or those lands pending the disposi-
5 tion of the land claim. That is consistent with the
6 initial conference resolution, it also reflects the
7 sentiment of the officers of the Society.

8 So that in our view the matter
9 is alive with the Department, it's certainly alive with
10 the Society, and it received support at the conference
11 of Alfred Charlie, then the Chief of the Old Crow
12 Band. Further resolution of the issue, in our view,
13 would be something that would be taken up when it is
14 clearer what the position with respect to land claims
15 -- how that question is resolved.

16 THE COMMISSIONER: Dr. Thompson,
17 you said that the -- or Mr. Hunt said that the Depart-
18 ment of Indian Affairs defined the area and recommended
19 setting the area aside under the Territorial Land Act.
20 What area was it the Department defined for the purpose
21 at that time?

22 A The area was the --
23 apart from what I would consider to be purely technical
24 almost editorial changes in the legal description, the
25 approach to legal description, it was the area as
26 covered and described at page 104 of the proceedings.
27 That page has the legal description of the range. In
28 effect, the area that's shown there.

29 Q And so it is the area that
30 was not chosen by Mr. Collins and his colleagues some

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1 years ago, but the area that follows the Porcupine River.

2 A That is correct, and it
3 really follows the southern bank of the Porcupine River
4 over to the valley, and over to the boundary of the
5 Yukon and the Northwest Territories.

6 MR. ANTHONY: Q Dr. Thompson,
7 could you tell me whether the area of the proposed
8 range is designated under the land management zone,
9 under the Land Use Regulations?

10 A Yes, I omitted mentioning
11 that. One of the conference resolutions was a request
12 that until a full management strategy could be put in
13 place the area should be protected by designation
14 as a land management zone under Land Use Regulations.
15 It is in fact covered by, I think, it's Zone 3 of those
16 regulations.

17 Q I'm sure we could go on
18 enthusiastically for some length about the features of that
19 area, but I am wondering perhaps, Dr. Thompson, with
20 perhaps some assistance from Mr. Collins, if you could
21 just briefly outline the particular environmental
22 significance of the area covered by that range?

23 A Yes. I'll defer to the
24 long experience of Mr. Collins. I have visited in there
25 and I was on the -- by the Firth River in June, I think
26 it was 1973, at the time of the caribou migration. I
27 know that part of the area, but I'll let George respond
28 to the question.

29 I also want to defer to an
30 article by George Calef. I believe that Dr. Calef has

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1 already appeared in some capacity before this Commission
2 or --

3 THE COMMISSIONER: He showed his
4 slides one evening to all of us in Yellowknife, but he
5 hasn't appeared as a witness, though everyone keeps
6 threatening to bring him forward.

7 A Well, the article in
8 question appeared in "Nature Canada", which is the
9 official publication of the Canadian Nature Federation,
10 and what I have submitted to yourself is an offprint
11 from the issue in question showing his article, giving
12 some background and also some photographs in the
13 middle, showing some examples of the terrain.

14 MR. ANTHONY: Perhaps, Mr.
15 Collins, you could just briefly outline some of the
16 significant environmental features of that area.

17 WITNESS COLLINS: First let
18 me go back a few years again and I'll only take a
19 minute here, in saying that when we became very much
20 interested in the Arctic, we, of course, as employees
21 of the National Park Service, charged with assessing
22 and recording upon the land forms, the scenic beauty,
23 the cultural attributes, the physiographic -- the
24 physiography and matters of that kind that a landscape
25 architect is concerned with, we went up into the Arctic
26 and I thought to myself, "Well, so far as I know, the
27 only land, the only relief higher in the pan-Arctic
28 world is on the east coast of Greenland at 11,000 feet
29 or thereabouts. Nowhere in Siberia or any other of
30 the countries of the pan-Arctic world do you find land

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1 forms or as high a relief as you do in North-eastern
2 Alaska. You have Mt. Itso, Mt. Michelson and a number
3 of peaks there that go up to 8, better than eight or
4 9,000 feet, which is very high at that latitude.

5 All right, that means that you
6 have life zones that are representative of just about
7 everything you could get north of 60, say, in that
8 region, in that immediate region. The question was how
9 big -- where to put a boundary? You could go on forever,
10 there's no good stopping place really. So you have to
11 arbitrarily make a decision as to where to put a line.

12 Now, you put a line on physio-
13 graphic bases as best you can that circumscribes the
14 best most significant of the habitat for the purpose
15 you have in mind, at that time namely an International
16 Park. We knew that there was a great and very healthy,
17 perhaps the most healthy, the best imbalance of any
18 band of caribou in all of North America in the Porcu-
19 pine herd. We knew also that they interdigitate with
20 other bands but we didn't know anything about how they
21 do that or how they maintain their individual band
22 arrangements, and few people do today, but we did know
23 that there was a very fine habitat there, high
24 country, low country, that had remained relatively and
25 continuously progressively evolutionary, that it was
26 not as vastly glaciated during the last Ice Age as
27 much of the surroundings, so that evolution continued
28 on relatively unaffected by, in that particular area,
29 by other ice and other influences geologically.

30 All right, so you had a flora

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1 and fauna that was evolving continuously over a great
2 period of time. Now it also seems a wonderful fact of
3 nature to me that you get a breakup condition there
4 in some of the valleys earlier in the spring than you
5 do in some of the others, and that it is a mecca for
6 all sorts of bird life that wings in from thousands
7 of miles to the south and that it is a feverish period
8 of breeding in that country in those very remote and
9 uninhabited reaches back among the high mountains of
10 the Eastern Brooks Range. There is magnificent
11 fauna offshore. We didn't extend the boundary out
12 there, we didn't know what to do about it. I wish we
13 had have. I know we were very well aware, and I know
14 many of you here are, that the point on a continent
15 where it meets the sea is one of the most sensitive
16 most indicative places to many interests we have --
17 biologically and historically too -- and that's one
18 of the most important of all.

19 We know that the Firth River
20 Valley and the low country, the pass up the Firth and
21 between the Firth and the Porcupine has been used from
22 time immemorial -- a young man here, a native man,
23 spoke to this point a while ago, and I was tremendously
24 interested in what he had to say. There was traffic
25 up through that Firth Valley and into the Porcupine
26 and down the Porcupine and the Yukon, I suppose, 20,000
27 years ago, I don't know a whole lot about that, but
28 there are three darker cross-hatchings on the right-
29 hand side of the Wildlife Range that indicate where we
30 knew, with others of our associates, that it was prime

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1 country for archaeological field research which has
2 never been carried out fully or thoroughly enough to
3 date, and I hope that will happen some day. But you
4 have such a fine variety of local wildlife species,
5 I wouldn't try to enumerate them, both marine and
6 terrestrial, including bird life. Some of it commutes,
7 you might say the areas are large enough, combine
8 Canada and Alaska to have migrations within the range
9 itself; and others migrate clear down from Tierra Del
10 Fuego and other continents and east and west from
11 Siberia. You get Siberian bean goose once in a while,
12 don't you, Bob, clear over in there? You get
13 one of the greatest pupping area for beluga whales in
14 the Mackenzie Bay, they drift back and forth. You get
15 some migration or at least commuting of the polar
16 bear back and forth across that forefront, so all in
17 all, without going into this matter any further, I
18 think I could say that it is probably one of the most
19 magnificent reaches we have in the entire world, cer-
20 tainly in the pan-Arctic world, and you can find com-
21 parables up there to what I've seen on the Sarangetti
22 Plains and there are places in Africa and elsewhere in
23 other parts of the world, we have something absolutely
24 magnificent. The native people ought to have a tremen-
25 dous role in its management and its conservation and
26 we had always hoped that that would turn out to be the
27 case. We think that it's terribly important that
28 people know how the international boundary bisects this
29 thing, this great physiographic prize we have between
30 us right in the middle, so it's just as incumbent upon

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1 the Canadians to reinforce with everything they have
2 the ideal and the idea of establishing the range on
3 their side of the line, as it is for us to do a good
4 job with what we already have established by example
5 on our side. I may say that the longer you procrastinate,
6 the more and more difficult it becomes for us
7 to continue on with a sound program on the Alaska side
8 because it's harder to convince Congress to give us
9 money for an improved program over there when they say,
10 "Well, let's wait until Canada does something with
11 their part of it."

12 I could go on, you know, and
13 give you quite a story here, but I think in the interests
14 of time, Mr. Commissioner, you probably have the feeling
15 that I have, you share it at this time so I'll stop.

16 Q Thank you, Mr. Collins,
17 that's quite helpful. Dr. Thompson, perhaps you
18 could go back and --

19 THE COMMISSIONER: I think if
20 you don't mind, Mr. Anthony, I think we'll adjourn
21 for supper now. I'm enjoying hearing this panel
22 very much, just as I do all panels, but I really would
23 like a break for a couple of hours. We'll come back
24 at eight in the hope that well, in the hope that
25 we'll have a lengthy and productive evening.

26 (RESUME OF DR. THOMPSON'S EVIDENCE MARKED EXHIBIT
27 163)

28 (LIST OF REPORTS RELIED ON MARKED EXHIBIT 164)

29 (UNIVERSITY OF B.C. LAW REPORT, JUNE 1971, MARKED
30 EXHIBIT 165)

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